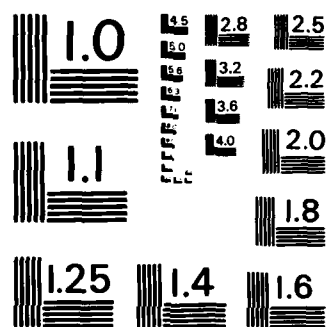


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# OCCUPATIONAL SURVEY REPORT

AIRCRAFT FUEL SYSTEMS CAREER LADDER

AFSC 423X3

AFPT 90-423-504

SEPTEMBER 1985

OCCUPATIONAL ANALYSIS PROGRAM  
USAF OCCUPATIONAL MEASUREMENT CENTER  
AIR TRAINING COMMAND  
RANDOLPH AFB, TEXAS 78150

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UNITED STATES AIR FORCE

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NACELLE  
NO. 4

MAIN WING  
TANK NO 2

MID BODY TANK

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HQ PACAF/TTGT	1		1	
HQ PACAF/DPAT	3		3	
HQ SAC/DPAT	3		3	
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388 TFW/MAT	2		2	
3507 ACS/DPKI	1			
3785 FLDTG/TTFO	2		2	

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## PREFACE

This report presents the results of an Air Force occupational survey of the Aircraft Fuel Systems career ladder (AFSC 423X3). Authority for conducting occupational surveys is contained in AFR 35-2. Computer printouts from which this report was produced are available for use by operations and training officials upon request.

The survey instrument was developed by First Lieutenant Ronald G. Clontz, Inventory Development Specialist. First Lieutenant Jim Clifford and Major Levon Simmons, Occupational Analysts, analyzed the data and wrote the final report. Ms. Vera Frechel and Ms. Becky Hernandez provided computer programming support for the project. This report has been reviewed and approved by Lieutenant Colonel Charles D. Gorman, Chief, Airman Career Ladders Analysis Branch, Occupational Analysis Division.

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to the USAF Occupational Measurement Center, Attention: Chief, Occupational Analysis Division (OMY), Randolph AFB, Texas 78150-5000.

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## SUMMARY OF RESULTS

1. Survey Coverage: The sample of 1,717 Aircraft Fuel Systems personnel (AFSC 423X3) who responded to the survey on which this report is based represents over 70 percent of the total personnel assigned to the career field at time of administration, providing accurate representation across various groupings.
2. Specialty Jobs: The study identified 10 different groups performing distinguishable combinations of tasks. The six groups performing a predominance of core fuel system maintenance duties accounted for over 90 percent of the sample (Fuel System Maintenance Specialists and Technicians, First-Line Supervisors, Integral Tank Specialists, Removal and Installation Specialists, Aircraft Preparation Specialists, and Basic Fuel System Maintenance Specialists). The four remaining groups identified were the Senior Supervisors, Trainers, Tank Repair Specialists and Technicians, and WRM Personnel.
3. Career Ladder Progression: A standard progression is evident, with 3- and 5-skill level personnel performing a predominantly technical job involving the core duties of aircraft preparation, component removal, troubleshooting, and component replacement. The 7-skill level personnel's job is predominantly technical; however, their job is likewise characterized by supervisory responsibility not evident at the 3- and 5-skill levels. Data on 9-skill level personnel were not gathered.
4. AFR 39-1 Specialty Description: These documents were verified by comparison with survey data and accurately describe the career field. Only a few minor items are delineated in the applicable section of this report for possible inclusion.
5. Training Analysis: Both the STS and POI are supported by survey data, with only a few tasks indicated to be considered for inclusion in the basic course.
6. MAJCOM Analysis: Differences were minor and expected, including more integral tank work performed in MAC, with more external tank work performed in TAC. High job satisfaction was expressed across all MAJCOMS.
7. Implications: No major problems were identified and the present career field structure is justified by survey data, which shows a high degree of stability and homogeneity.

OCCUPATIONAL SURVEY REPORT  
AIRCRAFT FUEL SYSTEMS CAREER LADDER  
(AFSC 423X3)

INTRODUCTION

This is a report of an occupational survey of the Aircraft Fuel Systems career ladder (AFSC 423X3) completed by the Occupational Analysis Division, USAF Occupational Measurement Center, in September 1985. This specialty was last surveyed in 1979. The present survey was requested by HQ USAF/LEYM, primarily to determine training requirements, with additional interest in job satisfaction issues.

The Aircraft Fuel Systems career ladder began in December 1956 as AFSC 43155. In 1961, the AFSC was changed to 424X0. In 1976, it was again changed to 423X3. The 9-skill level designation was changed from AFSC 42393 to AFSC 42399 on 30 April 1977. The ladder was included under the Chief Enlisted Manager (CEM) Code 43200 when the code was established in October 1978.

As described in the AFR 39-1 Specialty Descriptions, Aircraft Fuel Systems personnel advise on technical problems of fuel systems repair and maintenance; install, repair, and modify aircraft fuel systems; inspect aircraft fuel systems repair activities; and supervises Aircraft Fuel Systems personnel.

Primary entry into the career ladder is from Basic Military Training School (BMTS) through a Category A, 8-week formal training course (C3ABR42330-000) conducted at Chanute AFB, Illinois. There is no Electronics Principles Instruction (EPI) offered in relation to this course. There are four basic blocks of instruction which comprise the Aircraft Fuel Systems training: maintenance fundamentals, fuel systems, integral fuel tank maintenance, and fuel cell maintenance.

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## SURVEY METHODOLOGY

### Inventory Development

The data collection for this occupational survey was accomplished by using USAF Job Inventory AFPT 90-423-504, dated September 1983. A tentative task list was prepared after reviewing current career ladder publications, tasks from previous job inventories, and data from the previous occupational survey report (OSR). The tentative task list was then evaluated through personal interviews with 36 subject-matter specialists from 9 bases. These bases were chosen upon recommendation of MAJCOM functional managers. Bases visited and rationale are as follow:

Beale - largest SAC base with reconnaissance aircraft

Barksdale - SAC base with KC-10s assigned

Griffiss and K. I. Sawyer - large, northern tier SAC bases dealing with numerous issues including cold climate and ALCM modifications.

Dover - large MAC base with established FTD courses for the C-5A and other aircraft.

MacDill, Holloman, and Davis-Monthan - large TAC bases with the three primary TAC aircraft, the A-10, F-15, and F-16.

The resulting job inventory contained a comprehensive listing of 560 tasks grouped under 16 duty headings. A background section contained questions regarding standard personnel information, courses completed, present assignment, functional area, present aircraft, COMO/66-1, shift schedule, WRM/tank farm/external tank build-up and repair, explosion/nonexplosion-proof AGE, special tools, safety equipment, conditions of survey completion, computer use, job satisfaction, and test equipment used.

### Survey Administration

Consolidated Base Personnel Offices (CBPO) in operational units worldwide administered the inventory to personnel holding AFSC 423X3. These individuals were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Human Resources Laboratory (AFHRL).

Each individual completed the survey in three steps:

1. Completion of the background information section;
2. Identification of tasks performed in their current job;

3. A rating of each task performed on a 9-point scale, showing the relative amount of time spent on that task in comparison to the other tasks performed. The ratings ranged from 1 (very small amount of time spent) to 9 (very large amount of time spent).

#### Survey Sample

Of the 2,401 3-, 5-, and 7-skill level AFS 423X3 personnel assigned, 2,029 were eligible for the survey (allowing for TDY, PCS, etc.), and were mailed inventory booklets. Of those eligible, 1,761 personnel returned their surveys, of which 1,717 were useable.

Table 1 compares the percentage distribution, by MAJCOM, of the assigned personnel in the career field, as of October 1983, to the percent distribution of respondents used in the final sample. The 1,717 respondents included in the final sample represent over 70 percent of the personnel assigned to the 423X3 career field, thus ensuring accurate representation across major commands (MAJCOM) and paygrade groups.

Table 2 compares the paygrade distributions, while Table 3 compares the sample distribution by TAFMS. Although there is a 14 percent difference in the number of first-termers (1-48) in the sample versus the number assigned, the percent of 1-48 months TAFMS personnel in the sample is representative of the group as a whole. Likewise, the reverse is true when we look at the second enlistment group (49-96). In this group there is a 9 percent difference in the percent assigned versus the percent in the sample. Although there is a higher number assigned than in the sample, it is believed that the percent in sample is representative of the group.

TABLE 1  
COMMAND DISTRIBUTION (ASSIGNED VS SURVEY SAMPLE)

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED (N=2,401)</u>	<u>PERCENT OF SAMPLE (N=1,717)</u>
TAC	33%	35%
MAC	18%	18%
USAFE	17%	16%
SAC	15%	14%
PACAF	5%	5%
ATC	4%	4%
AFLC	3%	3%
AAC	2%	2%
AFSC	2%	1.5%
OTHER	1%	.5%
	<u>100%</u>	<u>100%</u>

Total Assigned - 2,401  
Total Eligible for Survey - 2,029  
Total of Assigned in Sample - 1,717  
Percent of Assigned in Sample - 72%  
Percent of Eligible in Sample - 85%

TABLE 2  
PAYGRADE DISTRIBUTION (ASSIGNED VS SURVEY SAMPLE)

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED (N=2,401)</u>	<u>PERCENT OF SAMPLE (N=1,717)</u>
E-1 thru E-3	41%	38%
E-4	24%	23%
E-5	19%	22%
E-6	9%	9%
E-7	6%	7%
E-8	1%	1%
	<u>100%</u>	<u>100%</u>

TABLE 3  
TAFMS DISTRIBUTION (ASSIGNED VS SURVEY SAMPLE)

<u>TAFMS MONTHS</u>	<u>PERCENT OF ASSIGNED (N=2,401)</u>	<u>PERCENT OF SAMPLE (N=1,717)</u>
1-48	61%	47%
49-96	17%	26%
97-144	8%	10%
145-192	9%	10%
193-240	4%	5%
241+	1%	1%
NO ID	1%	
	<u>100%</u>	<u>100%</u>

### Data Processing and Analysis

Once job inventories are returned from the CBPOs, the background information and task responses are checked for proper completion. The data are then entered into the computer. A series of related computer programs, called the Comprehensive Occupational Data Analysis Programs (CODAP), are then applied to the data to aid in analysis. The resulting CODAP computer products identify groups of survey respondents based on percent members performing and percent time spent on those tasks.

The basic identifying group used in the job-structuring process is called a job type. A job type is a group of individuals who perform essentially the same significant tasks and spend similar amounts of time doing them. A subcluster is the next level in the job structure, referring to a group of individuals who perform related tasks, but which contains several specific job types that differ from one another, usually in minor ways. A cluster then becomes a group of related job types and subclusters. A job variation is a job type not specifically discussed in this report, but is mentioned as one of several within a cluster or subcluster. When a job type is too dissimilar from other job types and is not included in a cluster or subcluster, it is termed an independent job type.

### Task Factor Administration

In addition to completing a job inventory, selected senior 423X3 personnel were asked to complete a second booklet for either training emphasis (TE) or task difficulty (TD). The TE and TD booklets are processed separately from the job inventories. Rating information is discussed in several detailed sections of this report.

Training Emphasis (TE). A final TE sample of 122 senior technicians completed TE booklets by rating tasks on a 10-point scale (from 0 for no training required to 9, for extremely high amounts of training required). Training emphasis is a rating that essentially rank orders the tasks listed according to relative amount of emphasis that should be placed on each task when training first-term personnel. When used in conjunction with other factors, such as percent members performing and task difficulty ratings, TE data can provide an insight into what level of structured training a particular task should be taught. Structured training is defined as training provided at resident technical schools, field training detachments (FTD), mobile training teams (MTT), formal OJT, or any other organized training program. All of these ratings and data may be used in validating the lengthening or shortening of specific units of instruction in the various training programs. The interrater reliability (as assessed through components of variance of standard group means) for the 122 raters surveyed was .98, indicating a very high level of agreement among raters concerning training requirements. In this specialty the average TE rating was 2.60, with the standard deviation being 1.7, indicating any task having a TE value of 4.3 or higher should be considered as having high training emphasis. Table 4 compares MAJCOM distribution of TE and TD groups.

Task Difficulty (TD). Each person completing a TD booklet was asked to rate all inventory tasks on a 9-point scale (from extremely low to extremely high) as to the relative difficulty of those tasks. Difficulty is defined as the length of time required by an average individual to learn to do a particular task. Task difficulty data were independently collected from senior personnel in the 423X3 career ladder stationed worldwide. Interrater reliability (as assessed through components of variance of standardized group means) was .93, which indicates a high degree of agreement among the 33 raters as to which tasks require considerably more or less amounts of time to learn, relative to the entire inventory of tasks. Tasks of average difficulty have ratings of 5.00 and a standard deviation of 1.00. The resulting data represent essentially a rank ordering of tasks, indicating the relative degree of difficulty for each task in the inventory.

Job Difficulty Index (JDI). After the data obtained from the raters on task difficulty is processed, it is possible to compute a job difficulty index (JDI) for the job groups identified in the survey analysis. An equation using the number of tasks performed and the average difficulty per unit time spent (ADPUTS) is the basis for calculating the JDI. In this equation, the more time a group spends on difficult tasks, or the more tasks they perform, the higher the JDI. The index ranges from 1.0 for extremely easy jobs, to 25.0 for extremely difficult jobs. The indices are adjusted so the average JDI is 13.0. This index provides a relative measure of which jobs in the specialty are more or less difficult when compared to each other. The index helps identify possible utilization problems or causes of job dissatisfaction.

Strength and Stamina Requirements. Senior personnel were also asked to indicate the tasks that any of the 423X3 personnel they supervise have experienced difficulty performing due to excessive physical strength or stamina requirements inherent in the task. Specific write-in comments are addressed in the SPECIAL CONSIDERATIONS section of this report.

TABLE 4

MAJCOM DISTRIBUTION OF RATERS FOR  
TASK DIFFICULTY AND TRAINING EMPHASIS

<u>COMMAND</u>	<u>PERCENT OF ASSIGNED</u>	<u>PERCENT OF TD RATERS</u>	<u>PERCENT OF TE RATERS</u>
TAC	33%	24%	30%
MAC	18%	12%	18%
USAFE	17%	21%	16%
SAC	15%	12%	18%
PACAF	5%	9%	5%
ATC	4%	3%	5%
AFLC	3%	12%	4%
AFSC	2%	6%	2%
OTHER	<u>3%</u>	<u>1%</u>	<u>2%</u>
	100%	100%	100%

SPECIALTY JOBS  
(Career Ladder Structure)

An important function of the USAF occupational analysis program is to examine the career ladder structure within a career field. Based on incumbents' responses to items in the task list, the analysis identifies groups of 423X3 personnel spending similar amounts of time performing many similar tasks. This basic group is termed a job type. Similar job types are then clustered together. In this way, analysis of the distinct jobs performed within the career ladder and of their relationship to each other results in a display of the career field structure. This information can then be used to understand current utilization of personnel, to identify job satisfaction trends that may impact management decisions, to examine such career ladder documents as AFR 39-1 Specialty Descriptions, Specialty Training Standards, course POIs, or for any of a variety of other uses.

Specialty Overview

The information obtained from the more than 1,700 respondents to the AFS 423X3 survey indicate that the majority of the career field generally is performing the same kind of job, with differences consisting mainly of shifts in emphasis from group to group. The data clearly show that almost two-thirds of the entire career ladder were involved in fuel system maintenance (GRP287). The remainder of the jobs fell into seven smaller clusters. The eight overall clusters are listed below, with their group number, size (N), and percent of sample.

- I. FUEL SYSTEMS MAINTENANCE (FSM) (GRP287, N=1,109; 65 percent)
  - A. FSM Specialists and Technicians (GRP299, N=781; 45 percent)
  - B. First-Line Supervisors (GRP296, N=328; 20 percent)
- II. FLIGHTLINE MAINTENANCE (GRP216, N=76; 4 percent)
- III. INTEGRAL TANK MAINTENANCE (GRP142, N=67; 4 percent)
- IV. REMOVAL/INSTALLATION (GRP86, N=23; 1 percent)
- V. MAINTENANCE PREPARATION (GRP62, N=44; 3 percent)
- VI. SENIOR SUPERVISOR/TRAINER (GRP84, N=96; 6 percent)
  - A. Senior Supervisor (GRP101, N=91; 5 percent)
  - B. Trainer (GRP117, N=5; 1 percent)
- VII. TANK REPAIR (GRP79, N=27; 2 percent)
- VIII. WAR RESERVE MATERIEL (WRM) (GRP72, N=24; 1 percent)



Over 85 percent of the AFS 423X3 sample is defined by the above clusters and subclusters. Nine percent of the remaining personnel did not report task and time spent combinations similar enough to each other to group together, nor were they similar enough to any of the above listed groups. The remaining 6 percent grouped into 12 very small groups (each less than 1 percent of sample). The distinguishing factor in these small groups tended to be difficult to identify or of no meaningful significance to the overall jobs being performed. Examples of unique aspects of some of these groups included a slight increase in mobility tasks in one case, or tasks associated with polyurethane in another (see Figures 1 and 1A: pie chart and cluster-merger diagram).

### Group Descriptions

This section briefly describes the clusters and, where there existed a variety of job types within a cluster, those job types are also described.

I. FUEL SYSTEMS MAINTENANCE (FSM) (GRP287, N=1,109; 65 percent). This cluster performs the core job of this specialty, which, as we might expect, involves overall maintenance of aircraft fuel systems. It contains two subclusters:

A. FSM Specialists and Technicians (GRP299, N=781; 45 percent). This subcluster represents the pure workers rather than the worker-supervisor combination present in the other group of this pair. It would reasonably follow, then, that the majority of the work of this cluster is described by the following duties: first, preparing the aircraft for maintenance; then, troubleshooting the fuel system to determine the defective component(s); and, finally, installing a working component to render the fuel system functional. These three duties together account for 56 percent of the job time for this group (Duties H, I, and K, respectively). A second set of three duties; Performing Support Functions, Inspecting Aircraft Fuel Systems, and Repairing Integral Fuel Tanks (Duties G, J, and M, respectively), comprise another 26 percent of their duty time. The remainder of their duty time is spent primarily, and fairly equally, across administrative duties. Some of the specific tasks indicated by the incumbents, under these general duties include:

Duty H. Preparing Aircraft for Fuel Systems Maintenance

ground aircraft and equipment  
position maintenance stands  
rope off fuel systems repair areas

Duty I. Troubleshooting Aircraft Fuel Systems

isolate malfunctions of fuel transfer system  
localize fuel leak exits

FIGURE 1  
423X3 CAREER LADDER SPECIALTY JOBS

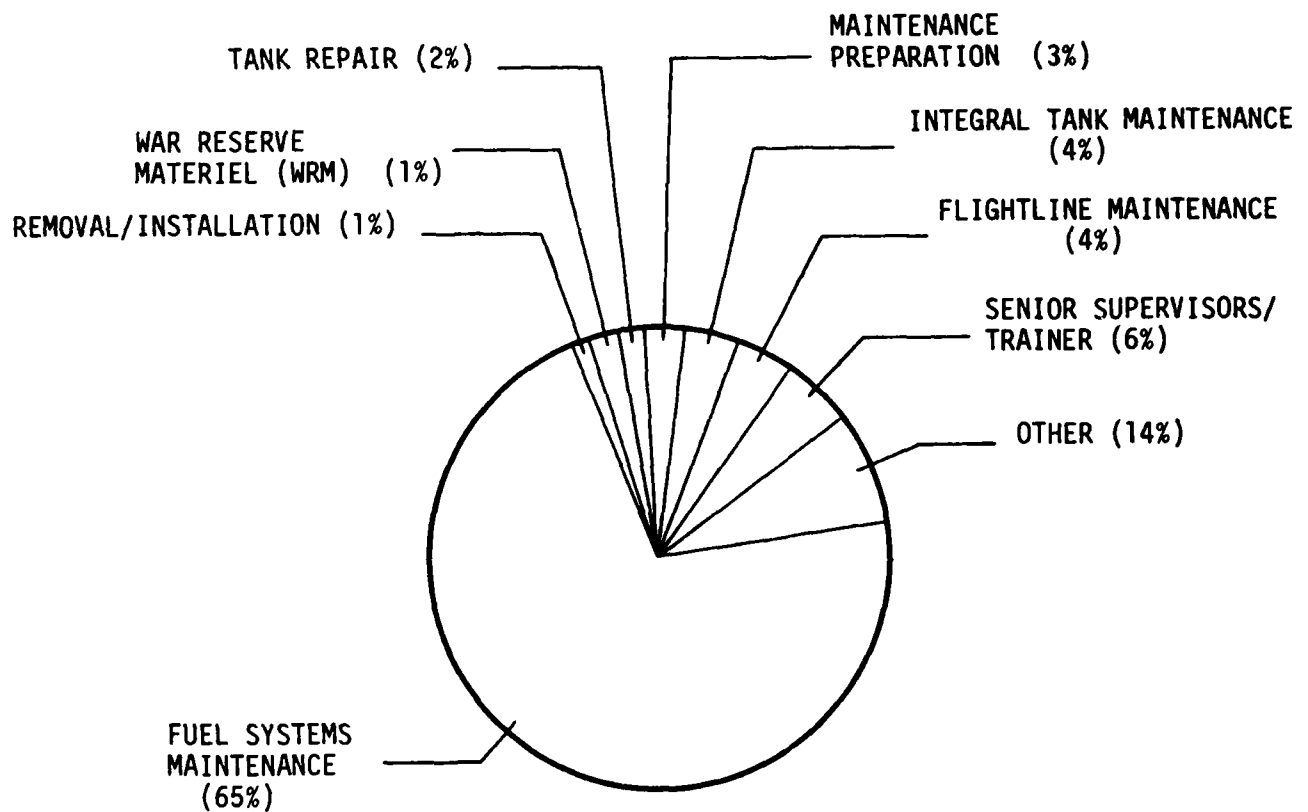
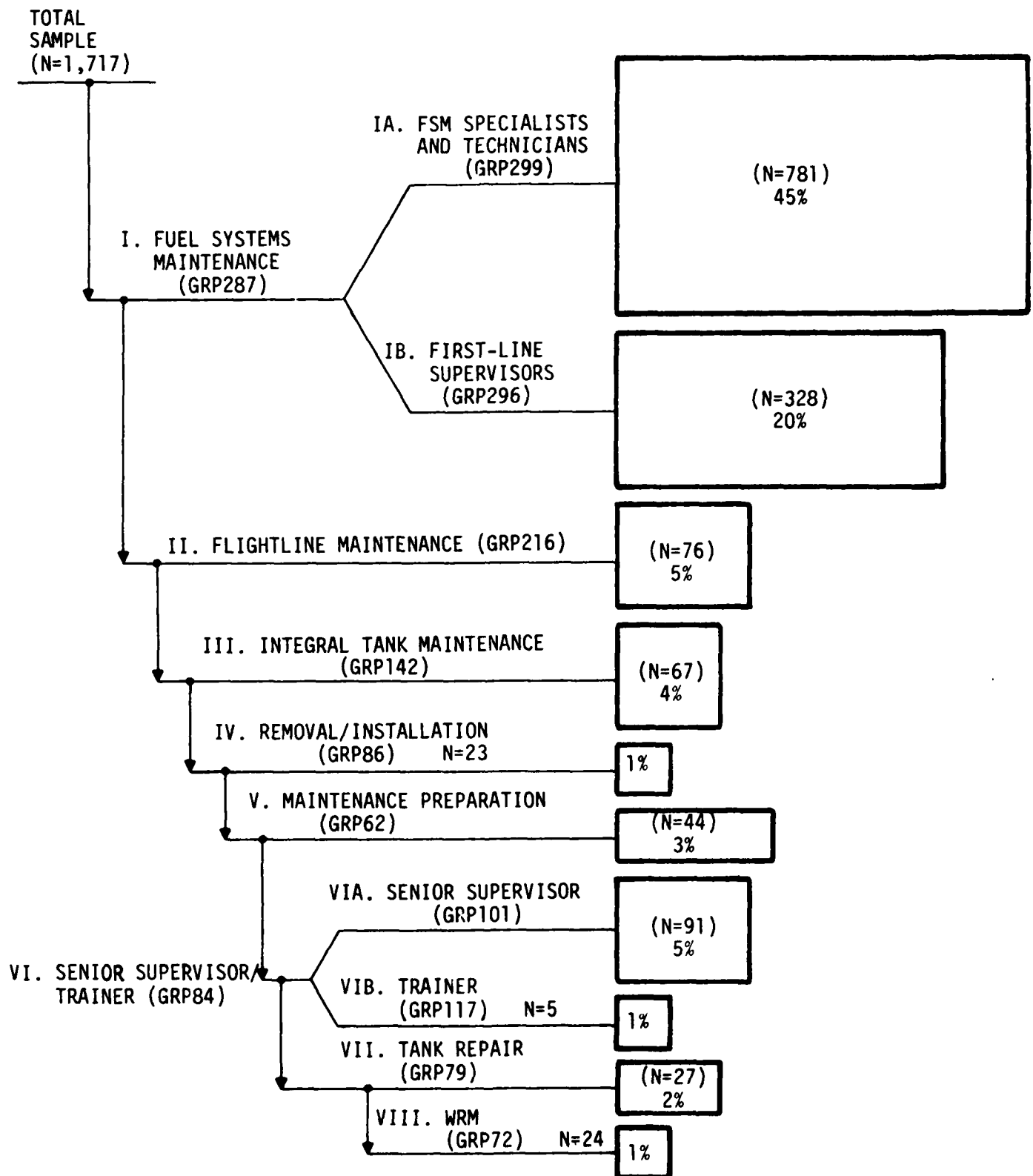


FIGURE 1A  
423X3 CAREER LADDER STRUCTURE



**Duty K. Removing and Installing Fuel Systems Components**

remove or install check valves and fuel level  
control valves  
remove or install fuel cells

For a more complete listing of representative tasks, see Appendix A, Table I.

Ninety-four percent of the subcluster are either E-3 (48 percent), E-4 (28 percent), or E-5 (18 percent). One-quarter of this group are located overseas, and the distribution across MAJCOMs approximates the MAJCOM distribution of the entire sample. Over 85 percent identify their present job title as fuel systems mechanic/technician, and their functional area assigned as the fuel systems repair shop and flightline. A variety of aircraft are maintained by personnel in this group, including the B-52 (D, G, and H models); C-5; C-130 (A, E, H, R, and W); C-141 (A and B); EC-, KC-, and RC-135; F-4 (C, D, E, and G); F-15 (A, C, D, and E); F-16 (A, and B); and F-111 (A, D, E, and F).

Seven job types comprise this subcluster, tending to differentiate by type of aircraft worked on.

(GRP429) F-4/F-15 Aircraft Fuel System Maintenance: The only aircraft this job type indicated working on to any significant extent are the different models of the F-4 (especially the E model), and F-15 (A, C, and D).

(GRP427) F-16 Aircraft Fuel System Maintenance: Ninety percent of this job type report working on the F-16 models in their present job. No other aircraft were indicated.

(GRP382) Water Injection Maintenance: Aircraft reported by this job type include: B-52, C-5, C-130, C-141, and KC-135. This group also reported a significant frequency of tasks performed involving water injection systems.

(GRP415) Fuel System Maintenance: This job type of 74 people perform the core job of this subcluster, meaning they reported Duties H, I, and K being performed in frequency most similar to the overall pattern for the group as a whole. The aircraft most frequently reported by this job type were the C-141B (24 percent), A-10 (20 percent), C-5 (15 percent), C-130 E/H (15 percent), and F-111 (10 percent).

(GRP346) Troubleshooting/Analysis: This job type of 10 people was distinguished from the others in this group by the fact that they performed significantly more troubleshooting and analysis tasks, in addition to the general fuel systems maintenance common to the entire cluster.

(GRP385) Removal/Installation, and Maintenance Preparation: This job type containing 19 members was unique from the rest of this subcluster because of the significantly greater emphasis in their job on Duties H and K, apart from the general fuel systems maintenance job they share with the cluster as a whole.

(GRP324) Stan Eval: This job type of eight members was distinguished from the others in the subcluster by the higher frequency of evaluation and inspection tasks.

B. First-line Supervisors (GRP296, N=328; 20 percent). As the second group of this pair, members of this group do much the same core work, but also carry the distinction of being first-line supervisors in addition to performing their maintenance duties. The job description for this subcluster indicates that the majority of the job time is spent on characteristic fuel system maintenance duties--preparation of the aircraft for maintenance, removal of defective component(s), troubleshooting the system, installation of functioning component(s), and inspection of the maintenance work performed. In addition, however, this group also reports a significant amount of time spent on supervisory duties. Representative tasks include:

- ground aircraft
- position maintenance stands
- remove fuel cells
- isolate malfunctions of fuel transfer systems
- interpret aircraft fuel system schematics
- inspect replacement components prior to installation
- supervise Aircraft Fuel System Mechanics (AFSC 42353)
- inspect work areas
- direct fuel system dock and flightline maintenance
- write APRs
- coordinate work with other sections or personnel
- conduct OJT

Three-fourths of this subcluster are staff sergeants (38 percent), technical sergeants (22 percent), and master sergeants (13 percent), while there are no E-1/E-2s or E-8/E-9s.

Three job types came together to form this subcluster. The distinction between them is minimal, as they display a high degree of job overlap. The job descriptions for all three job types consist of the exact same duties as those listed for the overall subcluster. The differences between job types exists not because different work is being performed, but because one spends slightly more time on aircraft preparation, while another emphasizes the troubleshooting aspect more than the other two groups, and the final one spends slightly more time on removal and installation tasks.

II. FLIGHTLINE MAINTENANCE CLUSTER (GRP216, N=76; 4 percent). The majority of job time for this cluster is spent on the two most basic duties in the fuel system maintenance job description: preparation of the aircraft for maintenance and removing and installing fuel system components. Not only are these duties the largest portion of the job description for this cluster, but the proportion is higher for this cluster than for any other in the entire sample. Tasks typical of the job performed by this cluster include:

- ground aircraft
- position maintenance stands
- connect or disconnect Wiggins type fittings
- remove and install fuel cells
- clean work areas
- inspect aircraft for safety pin installation
- purge tanks or cells using blow purge method
- remove or install integral tank or fuel cell access doors
- place identification tags on components, such as AFTO Forms 350
- bond equipment

There are noticeably fewer of the more involved tasks, such as troubleshooting/analysis, in this job description. As might be expected given the basic duties involved, this entire group is below the rank of tech sergeant, with over 95 percent below the rank of staff sergeant. Almost 90 percent of this cluster do not supervise, while the remainder report supervising either one or two subordinates. The average time in career field for this group is 2 years.

Five job types comprise this cluster. The largest contained 20 members, and is unique in that they all work with the F-16.

Two other groups resemble the core job of this cluster more than the other job types; however, an additional group performs some evaluation functions, such as inspecting components before installation.

One group was unique in their work with integral tanks in addition to the basic maintenance tasks performed in common with the rest of this cluster.

Another group spent the highest amount of its time on preparing aircraft for maintenance, more than any of the other job types in this cluster. Conversely, another group spent the least amount of time performing aircraft preparation functions. These differences are, however, minor ones. The information reported for this group indicates most clearly that all five groups within this cluster perform practically the same job.

III. INTEGRAL TANK MAINTENANCE (GRP142, N=67; 4 percent). This group follows the predominant pattern in this career ladder in the main part of their job, meaning the greatest percent of job time is spent on the three core maintenance duties: aircraft preparation (30 percent), troubleshooting to determine malfunction (17 percent), and removal/installation of components (13 percent). Immediately following these duties, however, is the highest frequency in the entire study of tasks related to integral tanks (12 percent), as indicated in the following list of representative tasks performed:

- position maintenance stands
- ground aircraft and equipment
- localize fuel leak exits
- isolate malfunction of fuel transfer systems
- perform red talcum powder tests
- remove or install integral tank or fuel access doors
- remove or install fuel level control valves
- clean integral tanks
- mix sealants
- apply fillet seals

Two job types comprise this cluster. Members of one group are designated as in-shop/flightline mechanics (able to alternate at any time between maintenance work on the flightline and in-shop). In contrast, the majority of the second group tend to be assigned specifically to either the flightline or in-shop (not able to alternate between the two maintenance sites).

Other than this distinction, however, this cluster is very homogeneous. Grade distribution shows 25 percent E-2, 50 percent E-3, and 25 percent E-4/E-5. Likewise, the large majority of this cluster reports a job title of mechanic, with very few claiming to be helpers, but none report holding a technician position. By far, the largest using command for this cluster is MAC (60 percent), which correlates with the performance of integral tank maintenance tasks in this group. This is followed by TAC with 12 percent, then AFLC and USAFE, with 9 percent each. The C-5 and C-141B were the aircraft most frequently maintained by this cluster (33 percent each). One-quarter of the cluster maintain the C-130 (H model-27 percent, E model-22 percent). Other aircraft maintained by this cluster are the A-10, KC-135A, T-39, and the HH 53H helicopter.

IV. REMOVAL/INSTALLATION (GRP86, N=23; 1 percent). This cluster spends one-third of their job time on removal/installation tasks, more than any other group in this study. Together with the maintenance preparation duty, this work comprises the majority of the job for this cluster. Again, as expected for this more basic maintenance work, the rank structure tends to be quite junior, as 85 percent of this cluster are E-2 thru E-4, and hold either the 3- or 5-skill level. Typical tasks for this cluster are listed below:

- ground aircraft
- position maintenance stands
- notify fire department of fuel systems maintenance
- connect or disconnect Wiggins and 'B' nut type fittings
- remove or install fuel level control and check valves

V. AIRCRAFT PREPARATION CLUSTER (GRP62, N=44; 3 percent). Members of this cluster spend 40 percent of their time on one duty: preparation of the aircraft for maintenance. This duty combined with removal/installation tasks accounted for the majority of the job time for this cluster. Again, the more basic nature of this work is paralleled by a junior grade structure. Over 85 percent hold the rank of E-1 thru E-4, with the 3- or 5-skill level, and are in their first enlistment. Tasks representative of the job for this cluster are listed below:

- ground aircraft
- depuddle tanks or cells
- position maintenance stands
- rope off maintenance area
- connect or disconnect Wiggins or 'B' nut type fittings
- remove or install access doors

Two job types exist in this cluster, and both report spending 40 percent of their time in maintenance preparation. They are differentiated only because one group works with integral tanks (accounting for 27 percent of their job time) on the C-5, C-130E, and C-141B, while the second group reports support and administrative duties as most prominent following maintenance preparation and removal or installation tasks.

VI. SENIOR SUPERVISOR/TRAINER CLUSTER (GRP84, N=96; 6 percent). This group contains two clusters, the predominant one being the Senior Supervisor Cluster (N=91). The remaining cluster of the pair is quite small (N=5), but they perform a unique job clearly characterized by a great deal of tasks dealing with training.

A. Senior Supervisor Job Type (GRP101, N=91; 5 percent). This job type reports a job description characteristic of a senior supervisor/NCO. This job description shows a relatively even distribution of job time across the six most time consuming duties for this job type (duties A-E) which, together, account for 75 percent of the job time.

The background profile for this group also correlates with the senior supervisor or NCO identity suggested by the job description. Over 80 percent of this group are in the E-6 thru E-8 grade range (no E-9s were surveyed), with a 7-skill level duty AFSC and an average time in career field of 15 years. The majority of this group reports supervising from 5 to 20 personnel. Tasks representative of the job for this group are as follow:

- counsel personnel on personal or military-related matters
- supervise Aircraft Fuel Systems Mechanics (AFSC 42353)



- supervise Aircraft Fuel Systems Technicians (AFSC 42373)
- write APRs
- develop or improve work methods or procedures
- advise subordinates on supply problems
- participate in staff meetings
- inspect or inventory composite tool kits (CTK) or special tools
- determine work priorities
- coordinate work with other sections or personnel
- plan or schedule shifts and work assignments
- orient newly assigned personnel
- schedule leaves or passes
- annotate or review D04 Daily Document Reports, and D18 Priority Monitor Reports

B. Trainer Job Type (GRP117, N=5; 1 percent). Quite a number of training tasks occupy a prominent position in the job description for this job type, which is not the case for any other group in the study. These tasks include the following:

- conduct OJT and evaluate OJT trainees
- inspect or evaluate training aids and equipment
- demonstrate how to locate technical information
- plan, direct, or schedule OJT
- counsel OJT trainees on training progress
- determine training requirements
- assign on-the-job (OJT) trainers
- make entries on AF Forms 623 and 623A (On-The-Job Training Record)
- make entries on AF Forms 797 (Job Qualification Standard Continuation Sheet)
- participate in training conferences or briefings

VII. TANK REPAIR (GRP79, N=27; 2 percent). This group's job description consists primarily of work with jettisonable fuel tanks, interaction with supply for a variety of items, and some administrative/supervisory tasks.

Tasks involving work with external jettisonable tanks include:

- isolate malfunctions of external fixed fuel tanks
- perform dash six inspections on jettisonable fuel tanks
- maintain external fuel tank storage areas (tank farms)
- perform pressure checks and prepare tanks for tank farm

Supply-related tasks including the following:

- make entries on AF Form 2413 (Supply Control Log)
- attach or annotate equipment status labels or tags, such as DD Forms 1574 (Servicable Tag Materiel)
- requisition supplies, equipment, bench stock and shop stock
- inventory bench stock, equipment, special tools, or supplies
- issue or receive external tanks
- inspect or inventory composite tool kits (CTK) or special tools
- identify supply problems and monitor shop stock levels

Supervisory tasks included:

- determine work priorities
- coordinate work with other sections or personnel
- inspect work areas
- direct shop housekeeping
- direct bench checks or repairs
- supervise Aircraft Fuel Systems Mechanics (AFSC 42353)
- supervise Aircraft Fuel Systems Technicians (AFSC 42373)
- develop or improve work methods or procedures

The grade structure for this cluster shows 90 percent of the group holding the rank of E-5 through E-7, with either a DAFSC of 5-level (65 percent) or 7-level (30 percent), with an average of 7 years in the career field. Two-thirds of this cluster also report supervising from one to five personnel. This cluster shows 96 percent assigned to the tactical forces (TAC 40 percent, PACAF 30 percent, USAFE 26 percent). They also report working with aircraft, including the F-4E/G, F-15A/C/D, and the F-16A/B. In fact, these personnel, especially the nonsupervisory members of this cluster, do both in-shop tank repair work, as well as jobs on the flightline, such as troubleshooting fuel transfer problems, responding to hydrazine spills, and depuddling fuel cells.

Some members report performing WRM-related tasks, as a minor aspect of the job, and may represent the practice of rotating personnel through the WRM section during their tour in tank repair. This group is not to be confused, however, with the following job description for the WRM group.

VIII. WAR RESERVE MATERIEL (WRM) (GRP72, N=24; 1 percent). This group has a very narrow job description composed almost entirely of WRM tasks such as:

- prepare external jettisonable fuel tanks for WRM storage
- repair or service WRM external jettisonable fuel tank nested containers
- perform pressure checks on external jettisonable tanks
- remove or install external jettisonable tank nosecones or tailcones
- assemble external jettisonable fuel tanks from nested containers or cannisters

Although this cluster shows its members assigned to the same three commands (the tactical forces) as the Tank Repair cluster, the top using command reported for the WRM group is USAFE with 67 percent, then TAC with 25 percent, and PACAF with 8 percent.

The grade structure for this WRM group is quite junior in comparison to most other groups showing 92 percent E-2 thru E-4, and only two members report supervising. Although every other group in the entire sample (N=1,717) reported working on some aircraft, this group (N=24) indicated they did not work on aircraft.

#### Comparison of Specialty Jobs

In addition to this list of job descriptions for the 8 clusters identified in the study, analysis of differences across these groups is important to understanding the structure across the entire career field. As mentioned before, the majority of respondents to this survey of AFSC 423X3 report they are performing many similar fuel systems maintenance tasks, thus indicating a great deal of homogeneity across more than 90 percent of the study. Only the Senior Supervisor, Trainer, Tank Repair, and WRM Clusters (which, together, account for less than 10 percent of the entire sample) perform a significantly different job from the rest of the sample. Other comparisons across the 10 clusters found in this study are presented in Table 5.

The Job Difficulty Index (JDI) is based on the number of tasks performed and the relative difficulty of these tasks with respect to time spent (mean = 13, SD = 5; see earlier discussion of Task Factor Administration). The JDI can be used to compare the job complexity for one of these 8 clusters relative to the others in this study. First-Line Supervisors (GRP296) rate the highest job difficulty (19), followed by the Senior Supervisors (GRP101) with a JDI of 16. Once again, the Fuel System Maintenance Cluster (GRP299) carries an average JDI of 13 by virtue of its size relative to the rest of the sample. The remaining five groups carry a JDI between 10 and 6.7, with the exception of the Maintenance Preparation personnel (GRP62; JDI=2) and the WRM personnel (GRP72; JDI=3).

Data are also gathered by five background questions dealing with job satisfaction information, including expressed job interest, perceived use of talents and training, sense of accomplishment from job, and reenlistment

intentions. Information on job satisfaction (see Table 6) reported by the AFSC 423X3 survey sample indicates a high reenlistment intention across all 8 job groups, none of which show a reenlistment intention below 68 percent, with 72 percent of the entire sample reporting they will probably or definitely reenlist (as compared to CY 1984 data for similar mission equipment maintenance career fields showing 67 percent). Data for the entire sample indicate satisfaction at or above that for similar career fields surveyed in 1984 for all five questions dealing with job satisfaction. The only groups reporting low job satisfaction are, once again, the Maintenance Preparation cluster (GRP62) and the WRM cluster (GRP72). This may be explained by the fact that both these groups reported the only significantly low JDIs (2 and 3, respectively), and by far the narrowest jobs in scope (average number of tasks = 13 and 24, respectively). Thus, these groups are indicating they occupy relatively less difficult jobs involving very few tasks (or, generally less challenging and more routine jobs). These groups do, however, report just as high a reenlistment intention as all other groups in this survey, as well as higher intentions compared to 1984 data for similar mission equipment maintenance career fields. This leads to the speculation that these incumbents, although seeing themselves in a relatively less satisfying job, also see this as a temporary condition and fully expect to move into more interesting jobs in the career field after their present one.

TABLE 5

## BACKGROUND INFORMATION ON JOB GROUPS

	IA FUEL SYSTEMS MAINT (GRP299)	IB FIRST-LINE SUPERVISOR (GRP296)	II BASIC FUEL SYSTEM MAINT (GRP216)	III INTEGRAL TANK MAINT (GRP142)	IV REMOVAL/ INSTALLATION (GRP086)
NUMBER IN GROUP:	781	328	76	67	23
PERCENT OF SAMPLE:	45%	20%	5%	4%	1%
AVERAGE NUMBER OF TASKS:	142	242	91	76	66
JDI:	13	19	8.7	6.7	8
MAJCOM (Z):					
TAC	33%	35%	62%	12%	26%
MAC	25%	10%	0	58%	5%
USAFE	12%	16%	21%	9%	10%
SAC	22%	17%	1%	5%	5%
PACAF	3%	6%	8%	5%	26%
OTHER	5%	16%	8%	11%	26%
DAFSC (Z):					
42333	12%	1.5%	21%	22.5%	17%
42353	78%	41.5%	79%	67%	74%
42373	10%	56.7%	0	10.5%	9%
AVERAGE GRADE					
AVERAGE TICF (MOS)	E-4	E-5	E-3	E-3	E-4
AVERAGE TAFNS (MOS)	42	103	26	36	39
PERCENT FIRST ENLISTMENT	51	115	37	40	49
	63%	16%	80%	75%	65%

TABLE 5 (CONTINUED)

## BACKGROUND INFORMATION ON JOB GROUPS

	V AIRCRAFT PREPARATION (GRP062)		VIA SENIOR SUPERVISOR (GRP101)		VIB TRAINER (GRP117)		VII TANK REPAIR (GRP079)		VIII WRM (GRP072)	
NUMBER IN GROUP:	44		91		5		27		24	
PERCENT OF SAMPLE:	3%		4%		.3%		2%		1%	
AVERAGE NUMBER OF TASKS:	13		131		63		81		24	
JDI:	2		15.9		9.7		10		3	
<u>MAJCOM (%) :</u>										
TAC	43%		37%		0		40%		25%	
MAC	21%		10%		0		4%		0%	
USAFE	14%		27%		80%		26%		67%	
SAC	5%		8%		0		0		0	
PACAF	5%		7%		0		30%		8%	
OTHER	12%		11%		20%		0		0	
<u>DAFSC (%) :</u>										
42333	43%		1.0%		0		4%		25%	
42353	55%		5.5%		60%		66%		75%	
42373	2%		93.5%		40%		30%		0	
<u>AVERAGE GRADE:</u>										
AVERAGE TICP (MOS)	E-3		E-6		E-5		E-4		E-3	
AVERAGE TAFMS (MOS)	24		165		116		82		34	
PERCENT FIRST ENLISTMENT	47		181		117		90		75%	
	57%		2%		0		15%			

TABLE 6

## JOB SATISFACTION FOR JOB GROUPS

	IA FUEL SYSTEMS MAINT (N=781)	IB FIRST-LINE SUPERVISOR (N=328)	II BASIC FUEL SYSTEM MAINT (N=76)	III INTEGRAL TANK MAINT (N=67)	IV REMOVAL/ INSTALLATION (N=23)
<u>EXPRESSED JOB INTEREST:</u>					
DULL	11	6	16	13	4
SO-SO	20	14	17	27	26
INTERESTING	69	80	67	60	70
<u>PERCEIVED USE OF TALENTS:</u>					
LITTLE OR NOT AT ALL	20	11	23	24	13
FAIRLY WELL TO PERFECTLY	80	88	77	76	87
<u>PERCEIVED USE OF TRAINING:</u>					
LITTLE OR NOT AT ALL	10	7	14	18	13
FAIRLY WELL TO PERFECTLY	90	93	86	82	87
<u>SENSE OF ACCOMPLISHMENT FROM JOB:</u>					
DISSATISFIED	14	13	12	16	9
NEUTRAL	11	7	17	18	13
SATISFIED	75	80	71	66	78
<u>REENLISTMENT INTENTIONS:</u>					
WILL RETIRE	2	7	0	2	0
WILL NOT/PROBABLY WILL NOT	30	13	22	25	17
WILL/PROBABLY WILL REENLIST	68	80	78	73	83

TABLE 6 (CONTINUED)

## JOB SATISFACTION FOR JOB GROUPS

	V AIRCRAFT PREPARATION (N=44)	VIA SENIOR SUPERVISOR (N=91)	VIB TRAINER (N=5)	VII TANK REPAIR (N=27)	VIII WRM (N=24)
<u>EXPRESSED JOB INTEREST:</u>					
DULL	18	8	0	7	23
SO-SO	25	8	20	19	25
INTERESTING	57	84	80	74	52
<u>PERCEIVED USE OF TALENTS:</u>					
LITTLE OR NOT AT ALL	39	13	40	20	43
FAIRLY WELL TO PERFECTLY	61	87	60	80	57
<u>PERCEIVED USE OF TRAINING:</u>					
LITTLE OR NOT AT ALL	20	10	40	26	35
FAIRLY WELL TO PERFECTLY	80	90	60	74	65
<u>SENSE OF ACCOMPLISHMENT FROM JOB:</u>					
DISSATISFIED	23	15	0	15	37
NEUTRAL	25	5	0	15	13
SATISFIED	52	80	100	70	50
<u>REENLISTMENT INTENTIONS:</u>					
WILL RETIRE	2	25	0	4	3
WILL NOT/PROBABLY WILL NOT	25	5	0	22	27
WILL/PROBABLY WILL REENLIST	73	70	100	74	70



## DAFSC ANALYSIS

After comparing the different job clusters which exist in this career ladder, it is also useful to compare the differences between skill level groups (duty AFSCs 42333, 42353, and 42373). In comparing the skill levels, the emphasis is on the differences in the tasks they perform. These differences can help determine the accuracy of documents which describe the career ladder, including AFR 39-1 Specialty Description and Specialty Training Standard (STS).

A comparison of the 3- and 5-skill level job descriptions indicates the two groups perform practically the same job, with a time-spent overlap of 88 percent. Tasks involving aircraft preparation, troubleshooting, and removal/installation together account for the majority of the job descriptions of both groups. The only difference between the two groups is a slight shift in emphasis toward troubleshooting in the 5-skill level job description.

When comparing the 3- and 5-skill levels with the 7-skill level, the data show only a slight increase in the supervisory and administrative duties and tasks performed (see Tables 7-10). As expected, the data show the two groups share the same core duties involving aircraft maintenance, but the 7-skill levels' work is not as concentrated in these duties as the 3- and 5-skill levels. Rather, they show a broader distribution of work across several duties in addition to those primarily dealing with actual maintenance tasks, including directing, implementing, evaluating, inspecting, and administrative functions. It is interesting to note, however, that 70 percent of the 7-skill level incumbents' job time is still spent performing technical duties. Some of the tasks which differentiate the 3- and 5-skill level from the 7-skill level job description include:

- write APRs
- supervise 42333 and 42353 personnel
- direct fuel system flightline and dock maintenance
- counsel personnel on personal or military-related matters

This shift from the 3- and 5-skill level showing a more pure worker description to one of a worker-supervisor at the 7-skill level correlates with the identity of the job groups which indicate the strong majority of supervisors are not entirely removed from performing the technical maintenance tasks of the career field. (The distribution of 3-, 5-, and 7-skill level personnel is shown in Table 11.)

Job satisfaction data for all three DAFSC groups are high, as indicated for the functional job groups.

TABLE 7

## RELATIVE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

<u>DUTIES</u>	<u>DAFSC 42333/53 (N=1,265)</u>	<u>DAFSC 42373 (N=446)</u>
A. ORGANIZING AND PLANNING	2	7
B. DIRECTING AND IMPLEMENTING	3	10
C. EVALUATING AND INSPECTING	2	7
D. TRAINING	2	6
E. PERFORMING ADMINISTRATIVE FUNCTIONS	4	7
F. PERFORMING SUPPLY FUNCTIONS	2	6
G. PERFORMING SUPPORT FUNCTIONS	10	7
H. PREPARING AIRCRAFT FOR FUEL SYSTEMS MAINTENANCE	19	11
I. TROUBLESHOOTING AIRCRAFT FUEL SYSTEMS	17	12
J. INSPECTING AIRCRAFT FUEL SYSTEMS	8	8
K. REMOVING AND INSTALLING FUEL SYSTEMS COMPONENTS	17	9
L. REPAIRING AIRCRAFT FUEL SYSTEMS COMPONENTS	3	2
M. REPAIRING INTEGRAL FUEL TANKS	7	4
N. PERFORMING GENERAL WATER INJECTION SYSTEM FUNCTIONS	1	1
O. PERFORMING CROSS UTILIZATION (CUT) DUTIES	2	1
P. PERFORMING MOBILITY TASKS	<u>1</u>	<u>2</u>
TOTAL	100%	100%

TABLE 8

TASKS REPRESENTATIVE OF WORK PERFORMED BY 3- AND 5-SKILL  
LEVEL PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
G190 CLEAN WORK AREAS	88
H225 BOND EQUIPMENT	88
H252 POSITION MAINTENANCE STANDS	88
H240 GROUND EQUIPMENT	87
H224 ATTACH AF FORMS 1492 (DANGER)	85
K415 REMOVE OR INSTALL INTEGRAL TANK OR FUEL CELL ACCESS DOORS	84
H239 GROUND AIRCRAFT	84
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	83
H253 PULL CIRCUIT BREAKERS	83
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	82
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	82
H233 DEPUDDLE TANKS OR CELLS	81
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	80
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	80
H238 DRAIN FUEL TANKS OR CELLS	78
I278 ISOLATE MALFUNCTIONS OF FUEL TRANSFER SYSTEMS	78
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	78
M483 MIX SEALANTS BY HAND	78
I302 PERFORM OPERATIONAL CHECKS OF TRANSFER SYSTEMS	78
H247 NOTIFY FIRE DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	76
K383 REMOVE OR INSTALL CHECK VALVES	75
I285 LOCALIZE FUEL LEAK EXITS	73
I303 PERFORM OPERATIONAL CHECKS ON ENGINE FEED SYSTEMS	73
K405 REMOVE OR INSTALL FUEL LEVEL CONTROL VALVES	73
I284 ISOLATE MALFUNCTIONS OF VENT SYSTEMS	72
I274 ISOLATE MALFUNCTIONS OF ENGINE-FEED OR CROSS-FEED SYSTEMS	72
H248 PERFORM FUEL SYSTEM PREPARATION CHECKLISTS	72
I281 ISOLATE MALFUNCTIONS OF REFUELING SYSTEMS	72
H259 REVIEW AIRCRAFT FORMS, SUCH AS AFTO FORMS 781 SERIES, FOR DEFICIENCIES	71
G181 ACT AS SAFETY OBSERVER FOR TANK ENTRY PERSONNEL	71
H261 TEST ATMOSPHERE OF TANKS OR CELLS FOR FIRE SAFE OR HEALTH SAFE CONDITIONS	71
I314 PERFORM RED TALCUM POWDER TESTS	70
M484 MIX SEALANTS USING MACHINES	69
H251 POSITION FIRE EXTINGUISHERS	69
H250 POSITION DRIP PANS	68

TABLE 9

TASKS REPRESENTATIVE OF WORK PERFORMED BY 7-SKILL  
LEVEL PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
C78 WRITE APR	84
G185 CHECK PERSONNEL FOR PROPER CLOTHING, EQUIPMENT, AND REMOVAL OF JEWELRY, OR SPARK/FLAME PRODUCING DEVICES	83
B50 SUPERVISE AIRCRAFT FUEL SYSTEM MECHANICS (AFSC 42353)	83
C74 INSPECT WORK AREAS	82
D103 MAKE ENTRIES ON AF FORMS 623 AND 623A (ON-THE-JOB TRAINING RECORD)	80
B24 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	80
H224 ATTACH AF FORMS 1492 (DANGER)	79
C73 INSPECT OR INVENTORY COMPOSITE TOOL KITS (CTK) OR SPECIAL TOOLS	79
E127 MAKE ENTRIES ON AF FORMS 1492 (DANGER)	78
I266 INTERPRET AIRCRAFT FUEL SYSTEM SCHEMATICS	78
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	77
E142 MAKE ENTRIES ON AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	76
B30 DIRECT FUEL SYSTEM FLIGHTLINE MAINTENANCE	76
E144 MAKE ENTRIES ON AIRCRAFT RECORD FORMS (AF FORM 781 SERIES)	76
I278 ISOLATE MALFUNCTIONS OF FUEL TRANSFER SYSTEMS	76
H240 GROUND EQUIPMENT	76
A6 COORDINATE WORK WITH OTHER SECTIONS OR PERSONNEL	75
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	74
H225 BOND EQUIPMENT	74
H252 POSITION MAINTENANCE STANDS	74
C77 REVIEW AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	74
B37 DIRECT SHOP HOUSEKEEPING	74
I281 ISOLATE MALFUNCTIONS OF REFUELING SYSTEMS	74
H239 GROUND AIRCRAFT	73
I302 PERFORM OPERATIONAL CHECKS OF TRANSFER SYSTEMS	73
J362 PERFORM IN-PROCESS INSPECTIONS (IPI)	73
H247 NOTIFY FIRE DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	73
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	72
I274 ISOLATE MALFUNCTIONS OF ENGINE-FEED OR CROSS-FEED SYSTEMS	72
B29 DIRECT FUEL SYSTEM DOCK MAINTENANCE	72
H259 REVIEW AIRCRAFT FORMS, SUCH AS AFTO FORMS 781 SERIES, FOR DEFICIENCIES	72

TABLE 10

REPRESENTATIVE TASK DIFFERENCES BETWEEN 3-/5- AND 7-SKILL LEVEL PERSONNEL  
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 42333/53	DAFSC 42373	DIFFERENCE
H241 INERT TANKS OR CELLS	30	10	+19
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	83	64	+18
H250 POSITION DRIP PANS	67	50	+17
G204 PAINT FACILITIES OR EQUIPMENT	65	48	+17
H234 DESEAL FUEL TANKS	48	31	+17
I286 PERFORM AIR HOSE AND EXTERNAL BUBBLE TESTS	54	38	+15
K383 REMOVE OR INSTALL CHECK VALVES	75	55	+15
O535 WALK WINGS OR TAILS DURING AIRCRAFT TOWING OPERATIONS	51	36	+15
H251 POSITION FIRE EXTINGUISHERS	69	53	+15
H238 DRAIN FUEL TANKS OR CELLS	78	63	+15
.	.	.	.
.	.	.	.
.	.	.	.
C72 INDORSE AIRMAN PERFORMANCE REPORTS (APR)	9	50	-40
A13 ORIENT NEWLY ASSIGNED PERSONNEL	28	69	-40
E116 MAINTAIN AF FORMS 219 (RECORD OF DUTY CARD)	13	54	-41
A11 ESTABLISH PERFORMANCE STANDARDS FOR SUBORDINATES	9	50	-41
B25 DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	21	63	-41
B51 SUPERVISE AIRCRAFT FUELS SYSTEMS TECHNICIANS (AFSC 42373)	4	46	-41
C60 EVALUATE INDIVIDUALS FOR PROMOTION, DEMOTION, RECLASSIFICATION, OR SPECIAL AWARDS	6	48	-41
F155 ANNOTATE OR REVIEW D18 PRIORITY MONITOR REPORTS	12	54	-41
F154 ANNOTATE OR REVIEW D04 DAILY DOCUMENT REPORTS	13	54	-41
B31 DIRECT FUEL SYSTEM REPAIRS IN ISOLATED AREAS	19	62	-42
A6 COORDINATE WORK WITH OTHER SECTIONS OR PERSONNEL	31	74	-43
D96 EVALUATE OJT TRAINEES	11	55	-43
B22 ADVISE SUBORDINATES ON SUPPLY PROBLEMS	13	56	-43
D87 COUNSEL OJT TRAINEES ON TRAINING PROGRESS	15	58	-43
A8 DETERMINE WORK PRIORITIES	24	69	-44

TABLE 10 (CONTINUED)

REPRESENTATIVE TASK DIFFERENCES BETWEEN 3-/5- AND 7-LEVELS  
(PERCENT MEMBERS PERFORMING)

TASKS	DAFSC 42333/53	DAFSC 42373	DIFFERENCE
B29 DIRECT FUEL SYSTEM DOCK MAINTENANCE	26	71	-45
B37 DIRECT SHOP HOUSEKEEPING	28	73	-45
B30 DIRECT FUEL SYSTEM FLIGHTLINE MAINTENANCE	30	76	-45
A17 PLAN OR SCHEDULE SHIFTS OR WORK ASSIGNMENTS	11	58	-47
D105 MONITOR PERSONNEL ENROLLED IN CAREER DEVELOPMENT COURSES (CDC)	10	58	-47
C77 REVIEW AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	25	73	-48
D104 MAKE ENTRIES ON AF FORMS 797 (JOB QUALIFICATION STANDARD CONTINUATION SHEET)	12	66	-53
B50 SUPERVISE AIRCRAFT FUEL SYSTEM MECHANICS (AFSC 42353)	28	82	-54
J362 PERFORM IN-PROCESS INSPECTIONS (IPI)	15	72	-57
D103 MAKE ENTRIES ON AF FORMS 623 AND 623A (ON-THE-JOB TRAINING RECORD)	22	80	-58
B24 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	18	80	-61
C78 WRITE APR	18	83	-65

TABLE 11

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS CAREER LADDER CLUSTERS AND JOB TYPES  
(PERCENT MEMBERS)

FUNCTIONAL JOB GROUP	DAFSC 42333		DAFSC 42353		DAFSC 42373	
	(NUMBER)	(PERCENT)	(NUMBER)	(PERCENT)	(NUMBER)	(PERCENT)
I. FUEL SYSTEMS MAINTENANCE (GRP287, N=1,109)	96	56%	743	68%	266	60%
II. BASIC FLIGHTLINE MAINTENANCE (GRP216, N=76)	16	9%	60	5%	0	0
III. INTEGRAL TANK MAINTENANCE (GRP142, N=67)	15	9%	45	4%	7	2%
IV. REMOVAL/INSTALLATION (GRP86, N=23)	4	2%	17	2%	2	-
V. MAINTENANCE PREPARATION (GRP62, N=44)	19	11%	24	2%	1	-
IV. SENIOR SUPERVISOR/TRAINER (GRP84, N=96)	1	1%	8	1%	82	18%
VII. TANK REPAIR (GRP79, N=27)	1	1%	18	2%	8	2%
VIII. WRM (GRP72, N=24)	6	3%	18	2%	0	0
OTHER (N=260)	14	8%	166	14%	80	18%
	172	100%	1,099	100%	446	100%

- Denotes less than 1 percent

## AFR 39-1 SPECIALTY DESCRIPTIONS

AFR 39-1 Specialty Descriptions are intended to provide a broad overview of the duties and tasks performed in each skill level of an AFS. Based on the DAFSC comparison covered in the previous section, all the duties and tasks mentioned in the AFR 39-1 Specialty Description for AFS 423X3 are referred to in the appropriate skill level job description generated from the survey data. There are, however, certain aspects of the job which were reported by survey respondents as being among the most prominent, but are not mentioned in any of the AFR 39-1 Specialty Descriptions. For example, at first glance, it might seem that preparing the aircraft for maintenance is inherent in performance of the overall job and would not warrant specific mention. This is, however, the most time-consuming duty in the entire job for the total sample. The AFR 39-1 already mentions a few specific tasks which are, in fact, preparatory tasks (such as removing access panels, purging tanks, and transferring fuel). It is suggested that the AFR 39-1 be changed to reflect the full range of aircraft preparation functions for maintenance activities at all skill levels.

For the 1-, 3-, and 5-skill level description, in addition to the need to specifically mention the aircraft preparation duty, there were two other tasks that appear appropriate for inclusion. Instead of the phrase referring to applying sealants, a phrase indicating preparing and applying sealants appears more appropriate, since preparing once again, may not be necessarily taken as inherent in the application tasks. Additionally, despite coverage in the 7-skill level description, no reference is made to the use of AF Form 349 in the 5-skill level description, although the survey data indicate it is equally a part of the 5-skill level job (60 percent and 74 percent members performing for the 5- and 7-skill level, respectively).



## TAFMS ANALYSIS

A comparison of AFS 423X3 groups with different amounts of total active federal military service (TAFMS) provides an analysis of how jobs change with increased time and experience in the career field. Table 12 shows how career field incumbents spend their job time as tenure in the specialty increases. As is the case for almost every AFS, the portion of job time spent performing supervisory, managerial, and training duties increases as time in service and experience increase.

Of particular interest (for training information) are the members of AFS 423X3 in their first enlistment (defined as 1-48 months TAFMS). Data for this group (and the two included groups of 1-24 and 25-48 months) show first-termers spending the majority of their job time (55-60 percent) on the core fuel system maintenance job involving aircraft preparation, removal and installation, and troubleshooting. Figure 2 displays the distribution of first-term members across the career ladder jobs. In fact, the sequence of the most time-consuming duties for both categories inclusive in the first-enlistment group are virtually identical. Eighty tasks comprise 50 percent of the job time for first-termers, with 131 average number of tasks reported (see Table 13 for representative tasks).

Second-enlistment personnel show the same three core duties as most prominent, but not as concentrated as first-enlistment personnel. This 49-96 month group shows a broader job (96 tasks comprise 50 percent of job time, with an average 144 tasks reported). Whereas the aircraft preparation, removal and installation, and troubleshooting tasks accounted for the majority of the first-term job description, they account for less than 50 percent of the job for second-enlistment personnel.

The only obvious difference among TAFMS groups occurs in the third enlistment and beyond (97+ months), at which point the core tasks involving aircraft preparation, removal and installation, and troubleshooting are accompanied by supervisory duties. Although these duties each accounted for 20 percent of the first-term job description, such emphasis is not evident in the third enlistment and beyond, where they occur only about half as frequently (about 10 percent of job time). Just as frequent are the supervisory tasks, especially Duty B (Directing and Implementing). The most prominent supervisory tasks include:

- write APR
- supervise Aircraft Fuel Systems Mechanics  
(AFSC 42353)
- supervise Apprentice Aircraft Fuel Systems Mechanics  
(AFSC 42333)
- counsel personnel on personal or military-related  
problems
- determine work priorities
- direct fuel system maintenance (dock and flightline)

In general, job satisfaction for all TAFMS groups is high relative to 1984 comparative data from all mission equipment maintenance specialties. The job satisfaction indicators were greater, with the exception of the 1-48 month group's expressed job interest, which was 67 percent versus 72 percent (see Table 14).

TABLE 12

## RELATIVE PERCENT TIME SPENT ON DUTIES BY TAFMS GROUPS

DUTIES	TAFMS		
	1-48 MOS (N=815)	49-96 MOS (N=443)	97+ MOS (N=446)
A. ORGANIZING AND PLANNING	1	3	7
B. DIRECTING AND IMPLEMENTING	2	3	10
C. EVALUATING AND INSPECTING	1	5	7
D. TRAINING	1	3	6
E. PERFORMING ADMINISTRATIVE FUNCTIONS	4	5	7
F. PERFORMING SUPPLY FUNCTIONS	2	4	6
G. PERFORMING SUPPORT FUNCTIONS	11	9	7
H. PREPARING AIRCRAFT FOR FUEL SYSTEMS MAINTENANCE	21	17	11
I. TROUBLESHOOTING AIRCRAFT FUEL SYSTEMS	18	15	11
J. INSPECTING AIRCRAFT FUEL SYSTEMS	7	8	8
K. REMOVING AND INSTALLING FUEL SYSTEMS COMPONENTS	18	15	9
L. REPAIRING FUEL SYSTEM COMPONENTS	3	2	2
M. REPAIRING INTEGRAL FUEL TANKS	8	6	4
N. PERFORMING GENERAL WATER INJECTION SYSTEM FUNCTIONS	1	1	1
O. PERFORMING CROSS-UTILIZATION TRAINING (CUT) DUTIES	2	2	1
P. PERFORMING MOBILITY TASKS	1	2	2

FIGURE 2

DISTRIBUTION OF 423X3 FIRST-ENLISTMENT PERSONNEL ACROSS CAREER LADDER JOBS  
(PERCENT MEMBERS RESPONDING)

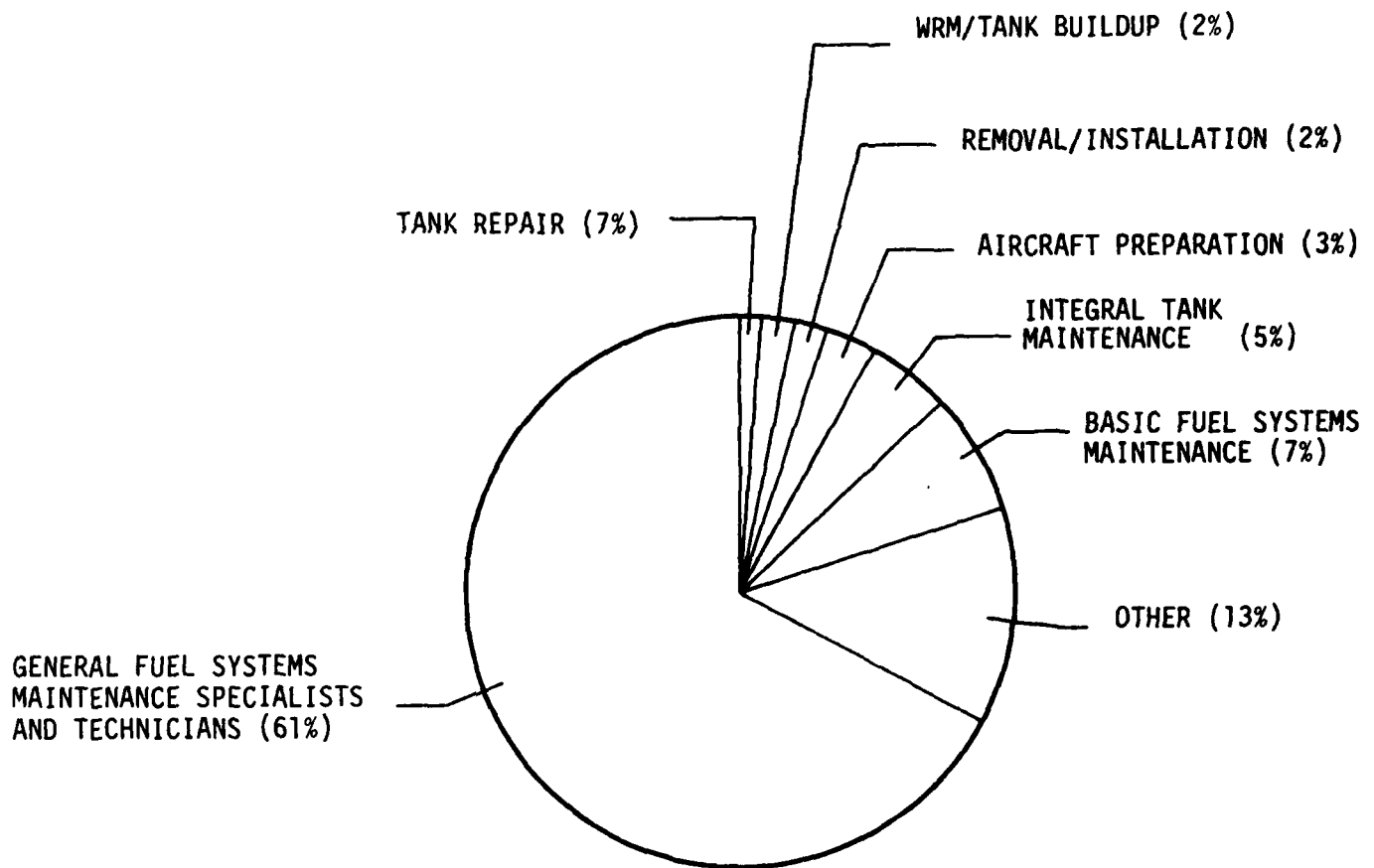


TABLE 13

TASKS REPRESENTATIVE OF WORK PERFORMED BY 1ST ENLISTMENT  
(1-48 MOS TAFMS) 423X3 PERSONNEL

TASKS	PERCENT MEMBERS PERFORMING
G190 CLEAN WORK AREAS	91
H252 POSITION MAINTENANCE STANDS	90
H225 BOND EQUIPMENT	89
H240 GROUND EQUIPMENT	88
H224 ATTACH AF FORMS 1492 (DANGER)	87
K415 REMOVE OR INSTALL INTEGRAL TANK OR FUEL CELL ACCESS DOORS	86
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	86
H239 GROUND AIRCRAFT	85
H253 PULL CIRCUIT BREAKERS	85
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	84
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	84
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	84
H233 DEPUDDLE TANKS OR CELLS	82
H238 DRAIN FUEL TANKS OR CELLS	81
M483 MIX SEALANTS BY HAND	80
I278 ISOLATE MALFUNCTIONS OF FUEL TRANSFER SYSTEMS	80
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	80
I302 PERFORM OPERATIONAL CHECKS OF TRANSFER SYSTEMS	80
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	79
K383 REMOVE OR INSTALL CHECK VALVES	79
H247 NOTIFY FIRE DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	77
K405 REMOVE OR INSTALL FUEL LEVEL CONTROL VALVES	76
I274 ISOLATE MALFUNCTIONS OF ENGINE-FEED OR CROSS-FEED SYSTEMS	74
I285 LOCALIZE FUEL LEAK EXITS	74
I284 ISOLATE MALFUNCTIONS OF VENT SYSTEMS	74
I281 ISOLATE MALFUNCTIONS OF REFUELING SYSTEMS	73
I303 PERFORM OPERATIONAL CHECKS ON ENGINE FEED SYSTEMS	73
H248 PERFORM FUEL SYSTEM PREPARATION CHECKLISTS	72
H259 REVIEW AIRCRAFT FORMS, SUCH AS AFTO FORMS 781 SERIES, FOR DEFICIENCIES	72
H251 POSITION FIRE EXTINGUISHERS	71
H261 TEST ATMOSPHERE OF TANKS OR CELLS FOR FIRE SAFE OR HEALTH SAFE CONDITIONS	71
M484 MIX SEALANTS USING MACHINES	70
I314 PERFORM RED TALCUM POWDER TESTS	70
G101 ACT AS SAFETY OBSERVER FOR TANK ENTRY PERSONNEL	70
H250 POSITION DRIP PANS	69

TABLE 14

JOB SATISFACTION INDICATORS BY TAFMS GROUPS  
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS		49-96 MONTHS		97+ MONTHS	
	423X3 (N=815)	COMP SAMPLE (N=7,891)	423X3 (N=443)	COMP SAMPLE* (N=3,015)	423X3 (N=446)	COMP SAMPLE* (N=3,790)
<u>EXPRESSED JOB INTEREST:</u>						
DULL	12	11	10	12	10	9
SO-SO	21	17	19	18	14	16
INTERESTING	67	72	71	70	76	75
<u>PERCEIVED USE OF TALENTS:</u>						
LITTLE OR NOT AT ALL	22	23	19	23	15	19
FAIRLY WELL TO PERFECTLY	78	77	81	77	85	81
<u>PERCEIVED USE OF TRAINING:</u>						
LITTLE OR NOT AT ALL	11	21	15	22	12	22
FAIRLY WELL TO PERFECTLY	89	79	85	78	88	78
<u>SENSE OF ACCOMPLISHMENT:</u>						
DISSATISFIED	12	16	18	20	17	20
NEUTRAL	14	13	8	14	10	11
SATISFIED	74	71	74	66	73	69
<u>REENLISTMENT INTENTIONS:</u>						
WILL RETIRE	0	0	0	0	14	15
WILL NOT/PROBABLY WILL NOT REENLIST	33	40	23	24	7	8
WILL/PROBABLY WILL REENLIST	67	60	77	76	79	77

\* Comparative sample of mission equipment maintenance career ladders surveyed in 1984, including AFSs 30XXX, 31XXX, 32XXX, 34XXX, 36XXX, 40XXX, 42XXX, 43XXX, 44XXX, and 46XXX

## CONUS-OVERSEAS ANALYSIS

A comparison of the job performed by CONUS-based AFS 42353 personnel (N=741) versus overseas-based AFS 42353 personnel (N=341) is important to highlight any significant differences which may exist. This comparison shows a considerable amount of job similarity between the two groups. The seven most time-consuming duties for both groups (which together account for over 80 percent of the job time in both job descriptions) are, in order:

- H. Preparing Aircraft for Fuel Systems Maintenance
- I. Troubleshooting Aircraft Fuel Systems
- K. Removing and Installing Fuel System Components
- G. Performing Support Functions
- J. Inspecting Aircraft Fuel Systems
- M. Repairing Integral Fuel Tanks
- E. Performing Administrative Functions

At the task level, task performance is practically identical. The first third of the job descriptions contain the same tasks, in almost the same order of precedence. The two groups also show a similar average number of tasks (130 and 133, respectively--both near the average for the entire survey sample of 139). Both groups also showed similarly high job satisfaction data.

## MAJCOM ANALYSIS

Also of interest are any differences in the work being performed across those MAJCOMS which are the major users of AFS 423X3 personnel. The commands to which 5 percent or more of this career field are assigned include:

TAC	33%
MAC	18%
USAFE	17%
SAC	15%
PACAF	5%
	<u>88%</u>

The MAJCOM table on the following page shows duty comparisons across these MAJCOMS (see Table 15).

The survey data indicate very little difference in the jobs being performed in these MAJCOMS. The three most time-consuming duties for all five MAJCOMS are those dealing with aircraft preparation, removal and installation, and troubleshooting. Likewise, the tasks performed, and time spent performing them, were essentially the same. The differences were attributable to type of aircraft system supported. Taken together, these duties account for 40-50 percent of the job time for all five MAJCOMS. The only differences found were that TAC, USAFE, and PACAF indicated more frequent work with the external jet-tisonable fuel tanks (and more specifically, USAFE personnel reported a significant frequency of WRM-related tasks), and MAC personnel reported performing a significantly high frequency of integral tank repair tasks. These differences are expected, given the type of aircraft these commands primarily maintain. Job satisfaction data was high for all MAJCOMs.



TABLE 15

## RELATIVE PERCENT TIME SPENT PERFORMING DUTIES BY MAJCOM GROUPS

DUTIES	MAJCOM PERCENT ASSIGNED				
	TAC (33%)	MAC (18%)	USAFE (17%)	SAC (15%)	PACAF (5%)
A. ORGANIZING AND PLANNING	3	2	4	3	4
B. DIRECTING AND IMPLEMENTING	4	3	6	4	6
C. EVALUATING AND INSPECTING	3	3	4	3	5
D. TRAINING	3	2	3	2	3
E. PERFORMING ADMINISTRATIVE FUNCTIONS	5	5	5	5	6
F. PERFORMING SUPPLY FUNCTIONS	3	2	5	3	6
G. PERFORMING SUPPORT FUNCTIONS	10	8	12	8	11
H. PREPARING AIRCRAFT FOR FUEL SYSTEMS MAINTENANCE	18	20	16	16	15
I. TROUBLESHOOTING AIRCRAFT FUEL SYSTEMS	16	18	14	17	12
J. INSPECTING AIRCRAFT FUEL SYSTEMS	8	8	8	8	7
K. REMOVING AND INSTALLING FUEL SYSTEMS COMPONENTS	16	14	13	14	16
L. REPAIRING AIRCRAFT FUEL SYSTEM COMPONENTS	2	2	2	4	2
M. REPAIRING INTEGRAL FUEL TANKS	5	11	4	7	3
N. PERFORMING GENERAL WATER INJECTION SYSTEM FUNCTIONS	0	0	1	4	0
O. PERFORMING CROSS UTILIZATION TRAINING (CUT) DUTIES	2	1	2	1	2
P. PERFORMING MOBILITY TASKS	2	1	1	1	2
	100%	100%	100%	100%	100%

## TRAINING ANALYSIS

One of the most important uses of this survey is to assist the development and evaluation of training programs for work performed in the first job (1-24 months) and the first enlistment (1-48 months). The most useful variable is the percent of members performing a task. The ratings of task difficulty and training emphasis (assigned to a task by AFS 423X3 senior personnel) are also helpful in making training decisions. Technical school personnel from Chanute AFB IL matched inventory tasks to appropriate sections of the Specialty Training Standard (STS) and Plan of Instruction (POI) for the 423X3 career field. A computer-generated listing displaying the percent of members performing and training emphasis and task difficulty ratings for each task has been forwarded to the technical school for use in any further detailed review of training documents. A summary of that information is given below.

### Task Difficulty

Those tasks rated highest in task difficulty (TD) were mainly in the supervisory and troubleshooting duties, which might be expected given the nature of these kinds of tasks and the fact that they are usually performed more by senior personnel. The only other duty indicated frequently among the high TD tasks was cross-utilization training (CUT). Although these might be generally considered straightforward tasks, they also represent tasks for which AFS 423X3 personnel usually have not received formal (technical school) training. These tasks are also reported as very infrequently performed, suggesting that each time these tasks need to be accomplished, they may require a great deal of relearning. Examples of the specific tasks considered difficult under these duties include:

#### Supervisory

- write APR
- direct fuel system repairs in isolated areas
- develop or improve work methods or procedures
- establish performance standards for subordinates
- counsel personnel on personal or military-related matters
- supervise Apprentice Aircraft Fuel System Mechanics (AFSC 42333)

#### Troubleshooting

- perform leak path analysis on integral tanks and cavity drain systems
- isolate malfunctions of vent, refueling, pressurization, and fuel transfer systems

### Cross Utilization Training (CUT)

- operate aircraft engines
- perform hot-pit refueling and defueling
- service liquid oxygen (LOX) bottles
- remove or replace aircraft engines, windscreens,  
and radomes

Although most of the other tasks rated high in TD were rarely reported as being performed by survey respondents, there were a few high TD tasks reported quite frequently, including removing or installing fuel cells and patching bladder fuel cells.

### Training Emphasis

Of the 560 total tasks in the inventory, 107 tasks were rated by senior AFS 423X3 personnel as having a high training emphasis (TE). This indicates that these tasks were rated significantly (at least one standard deviation) above the average TE rating. This high TE rating means these tasks are most important to be trained for personnel in their first enlistment. This training emphasis information is supported by the high agreement among the original 122 raters, and by the fact that of the first 50 tasks in this list, 45 are performed by a majority of first-term personnel. Table 16 lists the top 25 "high TE" tasks, 24 of which also happen to be performed by a majority of first-termers (while the remaining task is still performed by 44 percent of first termers). The 107 high TE tasks represent the core duties of the career field, including aircraft preparation, removing components, troubleshooting and installation of components.

TABLE 16

## TOP 25 TASKS IMPORTANT FOR FIRST-TERM TRAINING (1-48 MOS)

TASKS	TRAINING EMPHASIS RATINGS	PERCENT PERFORMING 1ST ENL (1-24 MOS)
H261 TEST ATMOSPHERE OF TANKS OR CELLS FOR FIRE SAFE OR HEALTH SAFE CONDITIONS	7.10	71
G181 ACT AS SAFETY OBSERVER FOR TANK ENTRY PERSONNEL	7.09	70
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	7.04	84
H225 BOND EQUIPMENT	6.85	89
H239 GROUND AIRCRAFT	6.80	85
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	6.76	80
H240 GROUND EQUIPMENT	6.76	88
H233 DEPUDDLE TANKS OR CELLS	6.70	82
H248 PERFORM FUEL SYSTEM PREPARATION CHECKLISTS	6.66	72
E142 MAKE ENTRIES ON AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	6.38	56
E144 MAKE ENTRIES ON AIRCRAFT RECORD FORMS (AFTO FORM 781 SERIES)	6.38	60
H224 ATTACH AF FORMS 1492 (DANGER)	6.34	87
I285 LOCALIZE FUEL LEAK EXITS	6.29	74
G185 CHECK PERSONNEL FOR PROPER CLOTHING, EQUIPMENT, AND REMOVAL OF JEWELRY, OR SPARK/FLAME PRODUCING DEVICES	6.09	61
H247 NOTIFY FIRE DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	6.08	77
I266 INTERPRET AIRCRAFT FUEL SYSTEM SCHEMATICS	6.07	67
H259 REVIEW AIRCRAFT FORMS, SUCH AS AFTO FORMS 781 SERIES FOR DEFICIENCIES	6.03	72
M470 CLEAN DAMAGED SEALANT AREAS	5.99	64
H255 PURGE TANKS OR CELLS USING OIL PURGE METHOD	5.95	44
M467 APPLY FILLET SEALS (FIRST COAT) BY HAND	5.88	59
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	5.86	84
I263 EVALUATE AND CLASSIFY INTEGRAL TANK LEAKS	5.83	67
H243 INSPECT AIRCRAFT FOR SAFETY PIN INSTALLATION	5.82	63
I303 PERFORM OPERATIONAL CHECKS ON ENGINE FEED SYSTEMS	5.74	73
K374 FOLD CELLS FOR INSTALLATION	5.72	58

### Specialty Training Standard

Since the STS serves to provide a general, comprehensive coverage of the significant work performed and equipment maintained by personnel in the field, an investigation is useful as to whether these aspects of the 423X3 career ladder are supported by survey responses. Thus, a review of STS 423X3, dated August 1983, was completed. STS paragraphs containing general information or subject-matter knowledge requirements were not evaluated.

The survey data indicate that the STS is a valid representation of the 423X3 career field. All paragraphs and subparagraphs matched with tasks from the inventory are well supported by the indicated levels of percent members performing for the first job (1-24 months), first enlistment (1-48 months), 5-skill level, and 7-skill level. Additionally, the tasks not matched to the STS all carried a low TE rating, and the 10 tasks showing significant levels of percent members performing are all supervisory, and rather general in nature, such as attending briefings, performing self-inspections, and evaluating suggestions.

### Plan of Instruction

The large majority of topics contained in POI C3ABR42333 are matched to portions of the inventory and are well supported by the percent of members performing the related tasks in the first job (1-24 months) and first enlistment (1-48 months). There are only two minor exceptions which should be reviewed by technical school personnel and considered for deletion:

- POI Section III 8A (principles of corrosion control) matched with task M465 (apply corrosion preventive coatings) showing only 20 percent members performing in both the first job and first enlistment.

- POI Section II 8B (tracing and interpreting electrical circuits using fuel system schematics) matched with task I265 (interpret aircraft electrical system wiring diagrams), which shows only 9 and 15 percent members performing in the first job and first enlistment, respectively.

NOTE: Technical school personnel have already indicated their intention to continue training tasks concerning electrical systems. Their justification is that, until recently, no equipment was available at the school to teach these tasks. The technical school suspects that this could be driving the low percent of 423X3 personnel performing the tasks in the operational setting, where, without this training, they tend to contact personnel outside the 423X3 AFS to accomplish electrical system maintenance.

There are also 22 tasks showing significant levels of percent members performing in the first job and first enlistment which are not covered in the present POI (see Table 17). These tasks should be reviewed by technical school personnel and considered for inclusion in the POI, since many of these tasks do refer to topics which appear to lend themselves to training in the basic course.

TABLE 17

TASKS NOT REFERENCED TO POI C3ABR42333 HAVING SIGNIFICANTLY HIGH PERCENT MEMBERS  
PERFORMING IN FIRST ENLISTMENT, AND HAVING A HIGH TE

TASKS	TNG	EMPH	PERCENT			TASK	DIFF
			IST	JOB	ENL		
K383 REMOVE OR INSTALL CHECK VALVES	4.47	79	79	79	79	4.49	
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	6.76	77	80	80	80	4.31	
H236 DISCONNECT BATTERIES	5.38	68	66	66	66	2.95	
K409 REMOVE OR INSTALL FUEL SHUTOFF VALVES, SUCH AS SLIDING GATE OR ROTARY PLUG VALVES	4.93	66	69	69	69	5.01	
I266 INTERPRET AIRCRAFT FUEL SYSTEM SCHEMATICS	6.07	63	67	67	67	5.80	
M479 MAKE TEMPORARY REPAIRS USING OYLE TITE	4.31	60	64	64	64	3.37	
G189 CLEAN OR LUBRICATE HAND TOOLS OR SPECIAL TOOLS	4.68	60	60	60	60	2.80	
E127 MAKE ENTRIES ON AF FORMS 1492 (DANGER)	5.10	60	61	61	61	2.92	
G217 PURGE REMOVED COMPONENTS PRIOR TO SHIPMENT	4.50	55	58	58	58	3.54	
H226 CHECK AIRCRAFT FOR EXPLOSIVES	5.67	50	55	55	55	3.41	
H257 REMOVE OR INSTALL CLOSURE PANELS	4.45	48	53	53	53	3.75	
I312 PERFORM PRESSURE TESTS ON INTEGRAL TANKS	5.25	47	52	52	52	5.86	
G186 CLEAN AND INSPECT TEST EQUIPMENT	5.18	47	53	53	53	3.59	
I273 ISOLATE MALFUNCTIONS OF DUMP SYSTEMS	4.38	45	52	52	52	5.73	
K416 REMOVE OR INSTALL INTERNALLY MOUNTED ELECTRICAL PUMPS OTHER THAN INTERNAL ELECTRICAL QUICK DISCONNECT PUMPS	4.56	45	49	49	49	5.18	
H255 PURGE TANKS OR CELLS USING EXHAUST PURGE METHOD	5.95	43	44	44	44	4.50	
H258 REMOVE OR INSTALL INTERNAL BRACES (FORMERS)	5.24	42	44	44	44	4.39	
H227 CHECK AIRCRAFT FOR LIQUID OXYGEN (LOX) BOTTLES	4.50	55	58	58	58	3.54	
C73 INSPECT OR INVENTORY COMPOSITE TOOL KITS (CTK) OR SPECIAL TOOLS	5.25	40	45	45	45	3.98	
M488 TEST MIXED SEALANTS FOR CONSISTENCY	4.60	36	37	37	37	4.44	
K375 PERFORM BONDING CHECK ON AIRCRAFT COMPONENTS	4.83	35	36	36	36	4.83	
B52 SUPERVISE APPRENTICE AIRCRAFT FUEL SYSTEMS MECHANICS (AFSC 42333)	4.43	17	32	32	32	6.10	

## COMPARISON TO PREVIOUS SURVEY

Also of interest is to compare this survey with the previous survey of AFS 423X3 (October 1979, AFPT 90-423-384). This comparison indicates a very stable career field. Both surveys identify five identical job types: Senior Managers and Supervisors, First-Line Supervisors, General Fuel System Specialists and Technicians, Basic Fuel System Specialists, and WRM Specialists. All of these represent almost identical portions of the survey samples, except for the 1979 Senior Supervisor cluster, which was twice the portion of that sample as the current survey. This is attributable to the fact that 9-skill level personnel (AFSC 42393) were surveyed in 1979, while the current 9-skill level personnel (AFSC 42399) were not surveyed. The only job indicated in the 1979 career field structure which did not group together in the current study were the Technical Instructors (N=5), although a similar job of the same size were described as Trainers. Three additional jobs were identified in the current survey which did not appear in the 1979 ladder. Two of these are essentially variations of the basic fuel system maintenance job (the two groups emphasized aircraft preparation and removal and installation tasks, respectively). Overall, job satisfaction was essentially the same, with the exception of significant increases in reenlistment intentions for all groups, with the 1-48 month TAFMS group showing a 30 percent increase (see Table 18). The only real unique job identified was the tank repair job, which was difficult to identify because of task wording in the 1979 survey instrument. Also, greater detail was available in the current survey due to the larger sample size, which increased by 30 percent.



TABLE 18

COMPARISON TO PREVIOUS SURVEY OF SATISFACTION INDICATORS BY TAFMS GROUPS  
(PERCENT MEMBERS RESPONDING)

	1-48 MONTHS		49-96 MONTHS		97+ MONTHS	
	1979 (N=622)	1985 (N=815)	1979 (N=204)	1985 (N=443)	1979 (N=500)	1985 (N=446)
SURVEY:						
<u>EXPRESSED JOB INTEREST:</u>						
DULL	16	12	15	10	7	10
SO-SO	27	21	28	10	15	14
INTERESTING	57	67	57	71	78	76
<u>PERCEIVED USE OF TALENTS:</u>						
LITTLE OR NOT AT ALL	31	22	22	19	12	15
FAIRLY WELL TO PERFECTLY	69	78	78	81	88	85
<u>PERCEIVED USE OF TRAINING:</u>						
LITTLE OR NOT AT ALL	18	11	15	15	12	12
FAIRLY WELL TO PERFECTLY	82	89	85	85	88	88
<u>REENLISTMENT INTENTIONS:</u>						
WILL RETIRE OR NOT REPORTED	3	0	3	8	3	14
WILL NOT/PROBABLY WILL NOT REENLIST	60	33	38	23	28	7
WILL/PROBABLY WILL REENLIST	37	67	59	77	69	79

## SPECIAL CONSIDERATIONS

An inquiry was addressed as to whether a revision of the X-factor (strength and stamina requirements) was necessary for the 423X3 career field. It was found that very few (12 percent) of the senior personnel surveyed for task factor information indicated a need for special strength and stamina requirements in completion of any of the 560 tasks in the inventory, and the only area mentioned was the WRM-related work. As to specific concern about the ability to pull a possibly unconscious worker from a fuel cell, the opinions of those consulted in writing this report indicate this will always require more than one person and should not be made a requirement for any individual.

## IMPLICATIONS

As mentioned earlier, the majority of respondents to this survey of AFS 423X3 indicate they are performing many similar fuel systems maintenance tasks, thus indicating a great deal of homogeneity across more than 90 percent of the ladder. Only the Senior Supervisor, Trainer, Tank Repair, and WRM clusters (which together account for less than 10 percent of the entire sample) perform a significantly different job from the rest of the sample.

The topics presented in AFR 39-1 Specialty Job Description for the 423X3 career ladder are all well supported by survey data; only a few minor changes, surfaced from current survey data, are offered for consideration.

The only departure from the high job satisfaction indications appear in the Basic Fuel Systems Maintenance group and the WRM group. Although these groups indicate mild dissatisfaction with their jobs, they do indicate strong reenlistment intentions. No information was received from survey respondents concerning suggestions for remedying this dissatisfaction. One positive aspect concerning the WRM job is that, although the job is routine, it appears quite often to be a rather short duty rotation of approximately one year (according to survey respondents reporting to be performing the WRM job).

Concerning training issues, since the STS and POI both appear as functional documents, the only change implied is the consideration (for inclusion in the POI) of the tasks listed in Table 17, which show areas of high percent of personnel performing, but do not appear to be covered in the present POI.

Comparison of current survey data to the previous survey indicate career field stability during the intervening time period.

APPENDIX A

**FSM SPECIALISTS AND TECHNICIANS**  
**(GRP299)**

**NUMBER IN GROUP:** N=781                      **PERCENT OF SAMPLE:** 45%

**MAJCOM DISTRIBUTION:** TAC (33%), MAC (25%), USAF (12%), SAC (22%), PACAF (3%)

**LOCATION:** CONUS (75%), OVERSEAS (25%)

**DAFSC DISTRIBUTION:** 42333 (12%), 42353 (78%), 42373 (10%)

**AVERAGE GRADE:** E-4

**AVERAGE NUMBER OF TASKS PERFORMED:** 142                      **JOB DIFFICULTY INDEX:** 13

**AVERAGE TIME IN CAREER FIELD:** 3.5 YRS                      **AVERAGE TIME IN SERVICE:** 4.25 YRS

**PERCENT MEMBERS IN FIRST ENLISTMENT:** 63%                      **PERCENT SUPERVISING:** 21%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
H252 POSITION MAINTENANCE STANDS	98
H225 BOND EQUIPMENT	98
K415 REMOVE OR INSTALL INTEGRAL TANK OR FUEL CELL ACCESS DOORS	97
H224 ATTACH AF FORMS 1492 (DANGER)	96
H240 GROUND EQUIPMENT	96
H253 PULL CIRCUIT BREAKERS	95
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	94
I278 ISOLATE MALFUNCTIONS OF FUEL TRANSFER SYSTEMS	94
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	94
G190 CLEAN WORK AREAS	94
I302 PERFORM OPERATIONAL CHECKS OF TRANSFER SYSTEMS	94
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	93
H239 GROUND AIRCRAFT	93
H233 DEPUDDLE TANKS OR CELLS	92
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	92
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	91
I274 ISOLATE MALFUNCTIONS OF ENGINE-FEED OR CROSS-FEED SYSTEMS	91
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	90
K383 REMOVE OR INSTALL CHECK VALVES	89
I303 PERFORM OPERATIONAL CHECKS ON ENGINE FEED SYSTEMS	89

## TABLE IB

NUMBER IN GROUP: N=328                      PERCENT OF SAMPLE: 20%

MAJCOM DISTRIBUTION: TAC (35%), MAC (10%), USAFE (16%), SAC (17%), PACAF (6%)

LOCATION: CONUS (64%), OVERSEAS (36%)

DAFSC DISTRIBUTION: 42333 (2%), 42353 (42%), 42373 (56%)

AVERAGE GRADE: E-5

AVERAGE NUMBER OF TASKS PERFORMED: 242                      JOB DIFFICULTY INDEX: 19

AVERAGE TIME IN CAREER FIELD: 8.5 YRS                      AVERAGE TIME IN SERVICE: 9.6 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 16%                      PERCENT SUPERVISING: 73%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
I278 ISOLATE MALFUNCTIONS OF FUEL TRANSFER SYSTEMS	98
H252 POSITION MAINTENANCE STANDS	98
H225 BOND EQUIPMENT	97
H224 ATTACH AF FORMS 1492 (DANGER)	97
H240 GROUND EQUIPMENT	97
I302 PERFORM OPERATIONAL CHECKS OF TRANSFER SYSTEMS	97
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	97
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	97
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	96
H247 NOTIFY DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	96
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	96
H261 TEST ATMOSPHERE OF TANKS OR CELLS FOR SAFE OR HEALTH SAFE CONDITIONS	96
I303 PERFORM OPERATIONAL CHECKS ON ENGINE FEED SYSTEMS	95
H239 GROUND AIRCRAFT	95
I284 ISOLATE MALFUNCTIONS OF VENT SYSTEMS	95
I266 INTERPRET AIRCRAFT FUEL SYSTEM SCHEMATICS	95
H253 PULL CIRCUIT BREAKERS	95
I297 PERFORM OPERATIONAL CHECKS OF GROUND REFUEL SYSTEMS	95
B50 SUPERVISE AIRCRAFT FUEL SYSTEM MECHANICS (AFSC 42353)	89
B30 DIRECT FUEL SYSTEM FLIGHTLINE MAINTENANCE	89

TABLE II

NUMBER IN GROUP: N=76                      PERCENT OF SAMPLE: 4%

MAJCOM DISTRIBUTION: TAC (62%), MAC (0%), USAFE (21%), SAC (1%), PACAF (8%)

LOCATION: CONUS (64%), OVERSEAS (36%)

DAFSC DISTRIBUTION: 42333 (21%), 42353 (79%), 42373 (0%)

AVERAGE GRADE: E-3

AVERAGE NUMBER OF TASKS PERFORMED: 91                      JOB DIFFICULTY INDEX: 8.7

AVERAGE TIME IN CAREER FIELD: 2.1 YRS                      AVERAGE TIME IN SERVICE: 3.1 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 80%                      PERCENT SUPERVISING: 12%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
H252 POSITION MAINTENANCE STANDS	97
H224 ATTACH AF FORMS 1492 (DANGER)	96
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	96
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	95
G190 CLEAN WORK AREAS	92
H225 BOND EQUIPMENT	92
H240 GROUND EQUIPMENT	92
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	87
K415 REMOVE OR INSTALL INTEGRAL TANK OR FUEL CELL ACCESS DOORS	86
H239 GROUND AIRCRAFT	86
H253 PULL CIRCUIT BREAKERS	86
H243 INSPECT AIRCRAFT FOR SAFETY PIN INSTALLATION	84
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	83
H227 CHECK AIRCRAFT FOR LIQUID OXYGEN (LOX) BOTTLES	78
K400 REMOVE OR INSTALL FUEL CELLS	78
H247 NOTIFY DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	75
G210 POSITION POWERED OR NONPOWERED AGE TO AIRCRAFT	74
H233 DEPUDDLE TANKS OR CELLS	74
H226 CHECK AIRCRAFT FOR EXPLOSIVES	71
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	71
K383 REMOVE OR INSTALL CHECK VALVES	71

TABLE III

NUMBER IN GROUP: N=67                      PERCENT OF SAMPLE: 4%

MAJCOM DISTRIBUTION: TAC (12%), MAC (58%), USAFE (9%), SAC (5%), PACAF (5%)

LOCATION: CONUS (70%), OVERSEAS (30%)

DAFSC DISTRIBUTION: 42333 (22%), 42353 (68%), 42373 (10%)

AVERAGE GRADE: E-3

AVERAGE NUMBER OF TASKS PERFORMED: 76                      JOB DIFFICULTY INDEX: 6.7

AVERAGE TIME IN CAREER FIELD: 3.0 YRS                      AVERAGE TIME IN SERVICE: 3.3 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 66%                      PERCENT SUPERVISING: 21%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
H240 GROUND EQUIPMENT	96
H252 POSITION MAINTENANCE STANDS	96
M483 MIX SEALANTS BY HAND	94
H225 BOND EQUIPMENT	93
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	93
H233 DEPUDDLE TANKS OR CELLS	91
G190 CLEAN WORK AREAS	88
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	88
H224 ATTACH AF FORMS 1492 (DANGER)	87
K415 REMOVE OR INSTALL INTEGRAL TANK OR FUEL CELL ACCESS DOORS	84
M484 MIX SEALANTS USING MACHINES	84
H253 PULL CIRCUIT BREAKERS	82
H239 GROUND AIRCRAFT	79
M470 CLEAN DAMAGED SEALANT AREAS	78
H228 CHECK AIRCRAFT FOR PROPER FUEL CONFIGURATION, SUCH AS CROSS FEED VALVES CLOSED AND TANKS DRAINED	78
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	78
G181 ACT AS SAFETY OBSERVER FOR TANK ENTRY PERSONNEL	76
H238 DRAIN FUEL TANKS OR CELLS	73
I314 PERFORM RED TALCUM POWDER TESTS	72
H232 DEFUEL TANKS OR CELLS BY TRANSFERRING FUELS	72
M479 MAKE TEMPORARY REPAIRS USING OYLE TITE	69



TABLE IV

NUMBER IN GROUP: N=23                      PERCENT OF SAMPLE: 1%

MAJCOM DISTRIBUTION: TAC (26%), MAC (4%), USAFE (9%), SAC (5%), PACAF (26%)

LOCATION: CONUS (60%), OVERSEAS (40%)

DAFSC DISTRIBUTION: 42333 (17%), 42353 (74%), 42373 (9%)

AVERAGE GRADE: E-4

AVERAGE NUMBER OF TASKS PERFORMED: 66                      JOB DIFFICULTY INDEX: 7.8

AVERAGE TIME IN CAREER FIELD: 3.2 YRS                      AVERAGE TIME IN SERVICE: 4.1 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 65%                      PERCENT SUPERVISING: 13%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	87
G190 CLEAN WORK AREAS	87
K400 REMOVE OR INSTALL FUEL CELLS	87
K383 REMOVE OR INSTALL CHECK VALVES	87
K415 REMOVE OR INSTALL INTEGRAL TANK OR FUEL CELL ACCESS DOORS	83
K405 REMOVE OR INSTALL FUEL LEVEL CONTROL VALVES	83
H252 POSITION MAINTENANCE STANDS	83
K367 CLEAN CAVITIES	74
K423 REMOVE OR INSTALL POLYURETHANE FOAM	74
H225 BOND EQUIPMENT	74
H238 DRAIN FUEL TANKS OR CELLS	74
H253 PULL CIRCUIT BREAKERS	70
K374 FOLD CELLS FOR INSTALLATION	70
H239 GROUND AIRCRAFT	70
I300 PERFORM OPERATIONAL CHECKS OF PRESSURIZATION SYSTEMS	65
H259 REVIEW AIRCRAFT FORMS, SUCH AS AFTO FORMS 781 SERIES, FOR DEFICIENCIES	65
K399 REMOVE OR INSTALL FUEL CELL CAVITY INTERCONNECTS	65
K409 REMOVE OR INSTALL FUEL SHUTOFF VALVES, SUCH AS SLIDING GATE OR ROTARY PLUG VALVES	65
H240 GROUND EQUIPMENT	65
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	61

## TABLE V

NUMBER IN GROUP: N=44                      PERCENT OF SAMPLE: 3%

MAJCOM DISTRIBUTION: TAC (43%), MAC (21%), USAFE (14%), SAC (5%), PACAF (5%)

LOCATION: CONUS (75%), OVERSEAS (25%)

DAFSC DISTRIBUTION: 42333 (43%), 42353 (55%), 42373 (2%)

AVERAGE GRADE: E-3

AVERAGE NUMBER OF TASKS PERFORMED: 40                      JOB DIFFICULTY INDEX: 2

AVERAGE TIME IN CAREER FIELD: 2 YRS                      AVERAGE TIME IN SERVICE: 4.0 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 57%                      PERCENT SUPERVISING: 7%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
H240 GROUND EQUIPMENT	86
H225 BOND EQUIPMENT	82
H224 ATTACH AF FORMS 1492 (DANGER)	75
G190 CLEAN WORK AREAS	73
H239 GROUND AIRCRAFT	73
H238 DRAIN FUEL TANKS OR CELLS	70
H233 DEPUDDLE TANKS OR CELLS	70
H252 POSITION MAINTENANCE STANDS	70
H254 PURGE TANKS OR CELLS USING BLOW PURGE METHOD	64
M484 MIX SEALANTS USING MACHINES	55
H260 ROPE OFF FUEL SYSTEM REPAIR AREAS	52
H250 POSITION DRIP PANS	52
H243 INSPECT AIRCRAFT FOR SAFETY PIN INSTALLATION	52
M483 MIX SEALANTS BY HAND	48
K372 CONNECT OR DISCONNECT WIGGINS TYPE FITTINGS	48
H236 DISCONNECT BATTERIES	48
E127 MAKE ENTRIES ON AF FORMS 1492 (DANGER)	48
K368 CONNECT OR DISCONNECT 'B' NUT TYPE FITTINGS	45
H247 NOTIFY DEPARTMENT OF FUEL SYSTEMS MAINTENANCE	45
H253 PULL CIRCUIT BREAKERS	45
I314 PERFORM RED TALCUM POWDER TESTS	43
G181 ACT AS SAFETY OBSERVER FOR TANK ENTRY PERSONNEL	41

## TABLE VIA

NUMBER IN GROUP: N=91                      PERCENT OF SAMPLE: 5%

MAJCOM DISTRIBUTION: TAC (37%), MAC (10%), USAFE (28%), SAC (8%), PACAF (7%)

LOCATION: CONUS (64%), OVERSEAS (36%)

DAFSC DISTRIBUTION: 42333 (1%), 42353 (6%), 42373 (88%)

AVERAGE GRADE: E-6

AVERAGE NUMBER OF TASKS PERFORMED: 131                      JOB DIFFICULTY INDEX: 16

AVERAGE TIME IN CAREER FIELD: 13.7 YRS                      AVERAGE TIME IN SERVICE: 15.1 YRS

PERCENT SUPERVISING: 76%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
C74 INSPECT WORK AREAS	97
B24 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	92
C78 WRITE APR	91
A4 ATTEND BRIEFINGS	91
A8 DETERMINE WORK PRIORITIES	90
A6 COORDINATE WORK WITH OTHER SECTIONS OR PERSONNEL	89
B22 ADVISE SUBORDINATES ON SUPPLY PROBLEMS	85
A13 ORIENT NEWLY ASSIGNED PERSONNEL	84
D103 MAKE ENTRIES ON AF FORMS 623 AND 623A (ON-THE-JOB TRAINING RECORD)	84
C77 REVIEW AF TO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	81
C73 INSPECT OR INVENTORY COMPOSITE TOOL KITS (CTK) OR SPECIAL TOOLS	81
B25 DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	81
A17 PLAN OR SCHEDULE SHIFTS OR WORK ASSIGNMENTS	78
C72 INDORSE AIRMAN PERFORMANCE REPORTS (APR)	75
A2 ASSIGN PERSONNEL TO DUTY POSITIONS	75
B37 DIRECT SHOP HOUSEKEEPING	75
F154 ANNOTATE OR REVIEW DO4 DAILY DOCUMENT REPORTS	75
F155 ANNOTATE OR REVIEW D18 PRIORITY MONITOR REPORTS	75
A21 SCHEDULE PERSONNEL FOR TEMPORARY DUTY (TDY)	75
E127 MAKE ENTRIES ON AF FORMS 1492 (DANGER)	75
C60 EVALUATE INDIVIDUALS FOR PROMOTION, DEMOTION, RECLASSIF- ICATION, OR SPECIAL AWARDS	74

## TABLE VIB

TRAINER PERSONNEL  
(GRP117)

NUMBER IN GROUP: N=5 PERCENT OF SAMPLE: 1%

MAJCOM DISTRIBUTION: TAC (0%), MAC (0%), USAFE (80%), SAC (0%), PACAF (0%)

LOCATION: CONUS (20%), OVERSEAS (81%)

DAFSC DISTRIBUTION: 42333 (0%), 42353 (60%), 42373 (40%)

AVERAGE GRADE: E-5

AVERAGE NUMBER OF TASKS PERFORMED: 63 JOB DIFFICULTY INDEX: 9.7

AVERAGE TIME IN CAREER FIELD: 9.6 YRS AVERAGE TIME IN SERVICE: 9.7 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 0% PERCENT SUPERVISING: 60%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
C74 INSPECT WORK AREAS	100
C73 INSPECT OR INVENTORY COMPOSITE TOOL KITS (CTK) OR SPECIAL TOOLS	100
G190 CLEAN WORK AREAS	100
G185 CHECK PERSONNEL FOR PROPER CLOTHING, EQUIPMENT, AND REMOVAL OF JEWELRY, OR SPARK/FLAME PRODUCING DEVICES	100
G189 CLEAN OR LUBRICATE HAND TOOLS OR SPECIAL TOOLS	100
E125 MAKE ENTRIES ON AF FORMS 1297 (TEMPORARY ISSUE REPORT)	100
G186 CLEAN AND INSPECT TEST EQUIPMENT	100
B25 DEVELOP OR IMPROVE WORK METHODS OR PROCEDURES	100
G219 REPAIR OR SERVICE WRM EXTERNAL JETTISONABLE FUEL TANK NESTED CONTAINERS	80
G213 PREPARE EXTERNAL JETTISONABLE FUEL TANKS FOR WRM STORAGE	80
D84 CONDUCT OJT	80
B37 DIRECT SHOP HOUSEKEEPING	80
E131 MAKE ENTRIES ON AF FORMS 2411 (INSPECTION DOCUMENT)	80
A4 ATTEND BRIEFINGS	80
C78 WRITE APR	80
A8 DETERMINE WORK PRIORITIES	80
A6 COORDINATE WORK WITH OTHER SECTIONS OR PERSONNEL	80
B24 COUNSEL PERSONNEL ON PERSONAL OR MILITARY-RELATED MATTERS	80
D103 MAKE ENTRIES ON AF FORMS 623 AND 623a (ON-THE-JOB TRAINING RECORD)	60
D96 EVALUATE OJT TRAINEES	60
D98 INSPECT OR EVALUATE TRAINING AIDS OR EQUIPMENT	60
D107 PLAN, DIRECT, OR SCHEDULE OJT	60

TABLE VII

NUMBER IN GROUP: N=27                      PERCENT OF SAMPLE: 2%

MAJCOM DISTRIBUTION: TAC (41%), MAC (4%), USAFE (26%), SAC (0%), PACAF (30%)

LOCATION: CONUS (44%), OVERSEAS (56%)

DAFSC DISTRIBUTION: 42333 (4%), 42353 (66%), 42373 (30%)

AVERAGE GRADE: E-4

AVERAGE NUMBER OF TASKS PERFORMED: 81                      JOB DIFFICULTY INDEX: 10.3

AVERAGE TIME IN CAREER FIELD: 6.8 YRS                      AVERAGE TIME IN SERVICE: 7.5 YRS

PERCENT MEMBERS IN FIRST ENLISTMENT: 15%                      PERCENT SUPERVISING: 63%

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
F171 MAKE ENTRIES ON AF FORMS 2413 (SUPPLY CONTROL LOG)	85
K376 PLACE IDENTIFICATION TAGS ON COMPONENTS, SUCH AS AFTO FORMS 350	81
G190 CLEAN WORK AREAS	78
F168 INVENTORY BENCH SOCKET, EQUIPMENT, SPECIAL TOOLS, OR SUPPLIES	78
G215 PREPARE PARTS FOR PICK UP OR DELIVERY	78
F158 ATTACH OR ANNOTATE EQUIPMENT STATUS LABELS OR TAGS, SUCH AS DD FORMS 1574 (SERVICEABLE TAG-MATERIEL	74
G196 ISSUE OR RECEIVE EXTERNAL TANKS	74
C73 INSPECT OR INVENTORY COMPOSITE TOOL KITS (CTK) OR SPECIAL TOOLS	74
G185 CHECK PERSONNEL FOR PROPER CLOTHING, EQUIPMENT, AND REMOVAL OF JEWELRY, OR SPARK/FLAME PRODUCING DEVICES	74
F162 CONTROL EQUIPMENT, PARTS, OR SUPPLIES	70
I276 ISOLATE MALFUNCTIONS OF EXTERNAL JETTISONABLE FUEL TANKS	70
J364 PERFORM PRESSURE CHECKS ON EXTERNAL JETTISONABLE TANKS	70
K392 REMOVE OR INSTALL EXTERNAL TANK NOSECONES OR TAILCONES	70
A8 DETERMINE WORK PRIORITIES	70
F178 REQUISITION SUPPLIES, EQUIPMENT, BENCH STOCK, OR SHOP STOCK	67
E142 MAKE ENTRIES ON AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	67

WAR RESERVE MATERIEL (WRM) PERSONNEL  
(GRP72)

GROUP DIFFERENTIATING TASKS	PERCENT MEMBERS PERFORMING
G190 CLEAN WORK AREAS	92
G213 PREPARE EXTERNAL JETTISONABLE FUEL TANKS FOR WRM STORAGE	83
G219 REPAIR OR SERVICE WRM EXTERNAL JETTISONABLE FUEL TANK NESTED CONTAINERS	75
J364 PERFORM PRESSURE CHECKS ON EXTERNAL JETTISONABLE TANKS	71
G187 CLEAN EXTERNAL TANKS	71
K390 REMOVE OR INSTALL EXTERNAL JETTISONABLE FUEL TANK COMPONENTS	71
K392 REMOVE OR INSTALL EXTERNAL TANK NOSECONES OR TAILCONES	71
G183 ASSEMBLE EXTERNAL JETTISONABLE FUEL TANKS FROM NESTED CONTAINERS OR CANNISTERS	58
G196 ISSUE OR RECEIVE EXTERNAL TANKS	54
J338 INSPECT EXTERNAL JETTISONABLE FUEL TANKS	54
G189 CLEAN OR LUBRICATE HAND TOOLS OR SPECIAL TOOLS	54
E142 MAKE ENTRIES ON AFTO FORMS 349 (MAINTENANCE DATA COLLECTION RECORD)	50
J337 INSPECT EXTERNAL JETTISONABLE FUEL TANK COMPONENTS	50
J358 INSPECT WAR RESERVE MATERIAL (WRM) BUILT-UP STORED EXTERNAL TANKS	46
G197 MAINTAIN EXTERNAL FUEL TANK STORAGE AREAS (TANK FARMS)	46
G212 PREPARE EXTERNAL JETTISONABLE FUEL TANKS FOR TANK FARM	42

**END**

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